The Iron Age

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pressor.

We present upon this page an illustration of slotted cross-head for driving the fly wheel. By this arrangement, while the disposition of the parts is similar to that of a direct-acting steam pump, the valves of the steam end are driven by an eccentric in the usual way. The slotted cross-head greatly simplifies the construction by doing away with guides, cross-head, connecting rods, and, in addition, greatly shortens the whole machine by allowing air and steam cylinders to be brought much closer together than would otherwise be possible. This compactness is of great advantage in making a small and strong machine of great capacity. A duplex compressor with 18 inch steam and 16 inch air cylinders, 14 inch stroke, will run from six to eight 31/4 inch drills, compressing at its ordinary speed about 525 cubic feet of air per minute. A single compressor of the same style will work three 31/4 inch drills. The slotted cross-head used in this machine has other points of advantage over those in com-mon use. The crank pin boxes, it will be seen from the cut, wear equally on both sides of the pin, and are so arranged that the wear, both on the pin and cross-head can be taken up at the same time without changing the relative position of the parts. The suction valves can be seen working, and the discharge valves can be examined in three or four minutes. Between these valves and their seats are rubber valves made especially for this work, and very hard, so they will not crush; these are faced on both sides as carefully as the valves themselves, thus they protect the valves and seats. The compressors have a stream of water running in the cylinder with the air, which takes up the heat and also serves the double purpose of lubrication and filing up the lost space be tween the piston and the head of the cylinder. so that no air is left to expand into the cylinder when the piston starts back on the return stroke. This is quite a valuable point as even a small amount of clearance may occasion a very serious waste of power. Mr. James Clayton, 14 and 16 Water street, Brook lyn, near Fulton Ferry, is the manufacturer.

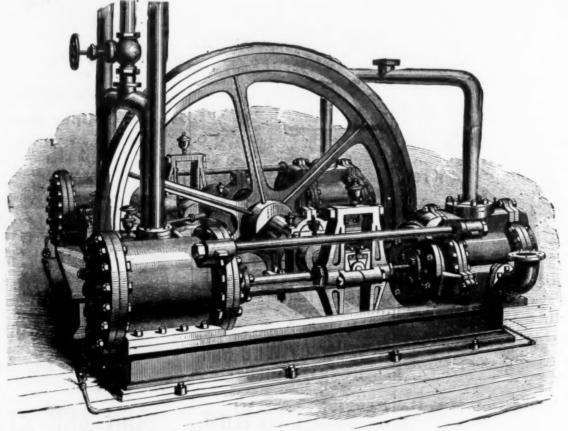
American Locomotives.

At the end of the year 1873, the Hon. Mr. Gillies, Australian Commissioner of Railways, informed Mr. T. Higinbotham, M. I. C. E., en gineer-in chief of Victorian railways, that his government considered it desirable that he should visit Europe and America, inspect the railways of those countries, and prepare a report concerning them for the information of the Australian government. Accordingly, Mr. Higinbotham left Melbourne on the 10th of March, 1874, and visited America, Great Britain, Europe, and, returning by way of India, in-spected most of the great lines in that country. He arrived in Melbourne again on the 11th of January, 1876, having thus been absent a year and ten months.

It has often been stated in this country, as well as in the United States, that the American locomotive is cheaper to build, to maintain, and to work than the English engine, and the statement has been disputed as often as it has been made. Mr. Highbotham reports that all call them, coupled to the ends of the true leadthe evidence he has obtained goes to show that ing axle of the engine. The apparently idle English locomotives could not be used at all; from which it appears that the American engine has a distinct vocation, and that it is vain to draw comparisons between the two types of machine. In writing about the Pacific Railad, for example, Mr. Higinbotham says: "I had opportunities of speaking to several drivers, Englishmen, who had driven in England; they all preferred the American to the English engine, which, they said, could not keep on such roads as are commonly to be found in the Western States." This may be taken as unprejudiced testimony: "The road was rough, and the speed at times down falling gradients very great, but the drivers appeared to have perfect confidence that their engines would not leave the road. The bogie they consider the great source of safety." these men had not tried English engines on the road they could not speak from experience. In his account of the Grand Trunk Railway of than an English engine. In this country bogies Canada, however, Mr. Higinbotham subsequently says: The whole of the engines and England, but the engines were constantly getting off the road, and engines and cars of every States," Further on we read: "The bogie truck and cast iron wheels are two of the most inportant features of American engines and olling stock, and both of these appear to me to have been adopted in consequence of the foad bed, which is frequently formed of earth only, is exposed alternately to intense frost and with six wheels only. sudden thaws, which completely distort the track. Only bogie engines and rolling stock | further assimilation to American practice is or not very encouraging, and bestowed little con- tectionist party, for on the 6th inst. another | be short.

Duplex and Double-Acting Air Com- could live on such roads, as was proved in the is not desirable. We have no intention of laud- solution upon the trading and manufacturing case of the Grand Trunk Railway of Canada, ing American locomotives and disparaging our interests, which have besieged the Dominion where, neglecting the experience that had been own; but, on the other hand, English engineers | Parliament with their complaints. The occa-

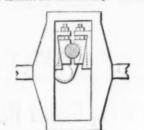
gained in the States, and relying also no doubt would not act wisely if they suffered a silly sion was favorable for an attack upon the fiscal a duplex double acting air compressor, with a on a better and more carefully laid road than question of prejudice to stand in the way and policy of the government; many members who was to be found there, English engines and shut out facts of the kind supplied by Mr. had been elected as supporters of Mr. Mackenzie rolling stock were tried, but had to be aban-Higinbotham. Whatever this gentleman may were pressed by their constituents to obtain at doned, and the American type adopted, think of American engines, it is certain that he least a qualified measure of protection for this Very recently, the same mistake was made holds the American railway car in very low or that branch of business; and it seemed poson the narrow gauge railroads in Canada, estimation. He points out that the bogic sysable enough that a bold onslaught by the antiand with the same result." We cannot tem is only applicable to carriages of large free trade party would raily a majority against ignore testimony of this kind, and it may be taken as conclusively settled that bogic engines, and American bogic engines in bogic engines, and American bogic engines in 9 tons. As regards comfort, he holds that the A. Macdonald and his following, and the battle particular, are less likely to be thrown off a American car cannot compare with the Eng- lasted for more than a fortnight. On Saturday road than English engines. This result is due, no doubt, to two causes. The first is the comparative flexibility of the American engine, the whatever would be gained, while a great deal by Sir John A. Macdonald "in favor of whole wheel base of which can twist itself would be lost, by the adoption of such cars in about so as to follow the vertical or horizontal this country. It must be understood that the contortions of a road with great ease; while the ordinary American car, to which alone Mr. the policy of the ministry was upheld by second is that the leading wheels of the American engine bogic are left very much to themselves, and are but little exposed to the influcars, which are admirably adapted to long. Highest than is referring, has little nothing in common with the Pullman palace and sleeping with the Ministry, and only 70 with Sir John A. Macdonald. It is worth noting that the abence of the lateral motion of the engine. It journeys. We have referred so frequently to sentees were very few, which may be taken as was once proposed to construct an engine with cast iron wheels in the course of this article a proof of the general interest excited by the



DUPLEX AND DOUBLE-ACTING AIR COMPRESSOR BY JAMES CLAYTON.

ported none of the weight of the engine, were inbotham supplies for another occasion .- Lonto run 5 feet or 6 feet in front, the end of the don Engineer. axle being carried in radius rods, if we may so vent them from leaving the rails, taking them nicely into and out of curves, and radiating them to the best advantage. There is reason to believe that the leading wheels of the American bogie in a great measure answer this pur pose, and so help to keep the engine on the road. Now, it is true that English engines on English roads very seldom run off, in spite of their long and comparatively rigid wheel base but this results not from the merits of the engine, but from the excellent qualities of the road; and it is worth considering whether an American engine, which is capable of running well on a road which sets an English locomo-It may be said that as tive at defiance, might not be found to run more lightly, cheaply, and with less practical or excluded from, the most profitable markets resistance, and less wear and tear of the track, by the high tariffs which find favor with many are used almost entirely in order to distribute tween the fiscal policy of the colonies and the weight, and with little or no regard for facili- mother country is dangerous to that unity of lling stock first put on the line were built in tating the motion of an engine or preventing feeling which is the strongest bond of empire. number of bogie engines have been so badly after a long series of protectionist triumphs, lass are now of the same kind as those in the designed that the bogic itself has suffered in free trade is gaining ground steadily. Since Britain, and it would be very interesting to has leaned cautiously, but clearly, to the side of engines as those on the North British Railway, has elapsed since 1873, when Sir John A. Macseverity of the climate in the winter, when the ing cost of Midland or London and Northwest- has been one of severe commercial depression

six carrying wheels, the leading wheels to be set almost precisely like the fore carriage of an omnibus, while two smaller wheels, which sup-our consideration of the information Mr. Hig-



SLOTTED CROSS HEAD AND CRANK PIN BOXES.

our merchants and manufacturers crippled in, colonial governments, but the divergence bewell designed bogie engines running in Great power the policy of the Dominion government

ground for reasonable hopes that Canada may be permanently conquered by free trade doctrines. We cannot disguise the fact that bitherto the approaches made toward the emancipation of commerce by the Canadian government wheels would, it was contended, never leave the road, for they would be spared all side which protection is making in our colonies which protection is making in our colonies. have been well-intentioned rather than enlightshocks, and they would continually guide the true leading wheels, steady them, and so prefull of interest for this country. Not only are but since free trade has been openly assailed, since an attempt to check and turn back the current of public opinion has been made, the mind of the country has apparently become more steady and clear-sighted in supporting the policy of the Mackenzie cabinet. A thorough discussion of the subjects has ended, as such discussions generally end, in converting many undecided persons and in strengthening the convictions of many half-hearted adherents. It may be predicted with some confidence that if Sir John A. Macdonald has now been unable to give a fatal blow to the policy of his opponents, he is not likely soon to meet with a ter opportunity. The financial prospect disclosed in Mr. Cartwright's budget disappoint ed the Dominion; the depression in business is almost as serious as it has been any time since 1873, and the signs of revival are as yet very slight and dubious. Moreover, an attempt had been made, with not a little success, to arouse a prejudice against Mr. Mackenzie's policy by the chance of derailment; and a considerable It is very gratifying, therefore, to perceive that, the assertion that it deliberately tended to throw the trade and industry of Canada into the hands of the United States, and to sacrifice reputation. But there are a great many very the accession of Mr. Mackenzie's cabinet to the merchants and manufacturers of the Dominion to their republican neighbors. Notwithstanding all these incentives to discontent, know what the running expenses of such bogic free trade. Unfortunately, the period which acting upon a community imperfectly instructed These shipments will be suspended by the war in economic science, the good sense of the in Europe. It will not pay to send these imvery imperfect permanent way and the great for example, are, as compared with the work- donald's administration was driven from office, people and of their parliamentary representatives has prevailed. The division of Saturday overland to their destination. The Russiana ern engines of about the same weight, and and industrial stagnation. The financial state- last rejecting Sir John A. Macdonald's proment which Mr. Cartwright laid the other day posals for "fostering" native industries, was now think that further shipments will be long It might thus be ascertained whether a still before the House of Commons, at Ottawa, was the second blow that has been given to the pro- delayed. It is their opinion that the war will

motion in the same sense was rejected by a majority of 31. The increase of the majority on the last occasion to 49 is very significant, and if the protectionists are wise they will abandon-for the present, at any rate-a hopeless and self-defeating enterprise

It is highly creditable to the Canadian Parliament and to the people of the Dominion that they have resisted a strong temptation at a most trying time. We trust that when the question is submitted to the constituencies they will sustain the judgment of their representatives. The protectionists proclaim their conviction that the country is on their side, and they allege that if a general election were now to be held the free traders would be left in a very insignificant minority. But there is no proof of this; and the inference to be drawn from the conduct of the majority in the House of Commons, at Ottawa, is of much weight on the other The ties of party allegiance are very loose in Canada, and a great many members could plead that they were pledged neither to protection nor to free trade when they were chosen as supporters of Mr. Mackenzie's policy -or, rather, as opponents and censors of Sir John A. Macdonald's administration. If there had been a prevalent feeling that the free trade inclinations of the government were disapproved by the country, we should have been quite prepared to see a serious defection from the ranks of the ministerialists at Ottawa in the debates upon the tariff. But the very reverse of this was what actually happened. Several members who even a year ago had advocated protection declared themselves con-verted to free trade. Such conversions do not ook like a protectionist revival. It is to be hoped that business will have improved, and that the economical policy of Mr. Cartwright will have made some impression upon the finances, before a general election comes round again. If the Canadians are sagacious enough in these days of despondency to reject the apparent advantages of protection, they will not be more disposed to turn to them when better times come back. If, on the other hard, the present stagnation continues, it may be that the reaction which the protectionits have up successfully invoked will make itself felt. But we have no reason to contemplate so unsatisfactory a reversal of the most recent and in-structive experience. Sir John A. Macdonald s a very able and skilled parliamentary leader, and the Mackenzie ministry has committed not a few blunders which are fresher in the memories of the Canadians than the Pacific scandal, now four years old. But neither the protectionist leader's ability nor the weakness of his antagonists was able to secure him so much as a footing upon ground he had chosen himself. It is only fair to give credit to the Canadian people for this result, and to wish that their firmness and prudence may be rewarded by something more substantial than the illusory prosperity of "fostered" industries and bounty

Material for Shipbuilding.-The existing troubles between Russia and Turkey and the unsettled condition of other European powers growing out of these hostilities have already created a demand upon this country for timber suitable for shipbuilding, and the agents of several foreign powers are here for the purpose of purchasing such timber. Two cargoes were recently shipped to France, and it is said that more has been pur-chased for Great Britain. But little live oak timber is in the market, the government having nearly all of this timber stored at the various navy yards, amounting in the aggregate to about 1,200,000 cubic feet, though much of it is decaying for want of suitable places in which to preserve it. The usual method of preserving this timber is by submerging it in wet docks, and we have not a sufficient number of such docks to contain it; therefore the timber has to remain in the open air, and, in many instances, not even a shed covers it. Vast quantities of other timber, such as white oak, walnut, pine, &c., also lay exposed to the weather at several navy yards, and much of it is already unfit for use on account of being so exposed. Live oak timber, which is most used in shipbuilding, is cut in the winter, but does not become seasoned for a year or two. It was the policy of the late Secretary of the Navy to purchase nearly all such timber as fast as cut, and therefore a small quantity only is to be found in the market.

Three shipments of agricultural implements have been made from this port to Russia, under the new arrangement for supplying the farmers of the northern provinces with the louis which have enabled the Americans to beat them in the sale of grain in the markets of the world. plements to the Baltic ports and freight them engaged in this business, however, do not Metals.

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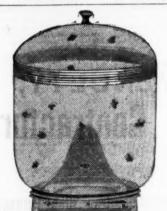
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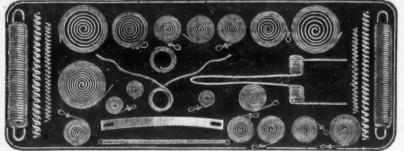
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WM. F. DONOVAN, General Manager. NEW YORK OFFICE, 97 Chambers Street.

The Reading Engineers' Strike.

We have received the following statement with regard to the engineers' strike on that line, which will be read with interest:

Several months ago perfectly authentic inthe purpose of establishing its claim to control the union men upon their own terms. the railway traffic of the country. It is posmittee to be frankly informed by them, wheththe only answer made by the committee was, that "they were not authorized to answer that question."

On the 27th of March the following letter was sent in writing to the committee:

PHILADELPHIA AND READING RAILROAD CO. |
[Copy]. Office 227 South Fourth street,
PHILADELPHIA, March 27, 1877.

To Messrs. W. H. Parker, W. J. Sneeigerd,
Louis Arnold, Samuel Kepner and William Luckins.—GENTLEMEN: With reference to your
letter of March 15th, asking for an advance of
20 per cent, upon the wages of engineers and
firemen, I have to say that having had some intimation that officers of the association known
as the Brotherhood of Locomotive Engineers,
contemplate making an attack upon us someas the Brotherhood of Locomotive Engineers, contemplate making an attack upon us somewhat similar to those recently made upon the Central Railroad of New Jersey and the Boston and Maine Railroad, I must decline further recognition of you as a cammittee, until sasured that you are not acting as such in the interest of the movement above referred to.

Respectfully yours,

(Signed),

J. E. WOOTTEN,
General Manager.

On the same day, viz., March 27th, the fol-

lowing notice was sent to every locomotive engineer in the service of the company :

In view of the recent high-handed interference with the business of railroad companies, and the serious and sometimes fatal consequences that have resulted to the innocent traveling public from the unjustifiable and arbitrary conduct of the organization known as the Brotherhood of Locomotive Eugeneers upon other railroads, it has been deemed unadvisable to retain in the employment of this company anyone who is a member of that organization.

If you are in such membership you will be called upon in a day or two to decide whether you desire to remain in the employment of the company by complying with the regulation requiring you to withdraw from the association referred to

It is not the desire of the company to deprive its employes of any of the beneficial or life insurance features of the Society of the Brotherhood of Locomotive Engineers, without offering in their stead greater benefits of a similar character, and it is, therefore, proposed by the company to establish and endow a life and accident insurance fund, out of which all engineers, upon payment of a monthly sum less than previously paid, will receive in case of accident or death, greater benefits than those heretofore derived from the Brotherhood of Locomotive Engineers.

Upon being informed of your desire to continue in the employment of the company, the undersigned will be pleased to give you any information you may desire as to the details of the beneficial fund, and to discuss with you directly any question involving your relations with the company. Respectfully, yours,

J. E. WOOTTEN, General Manager.

Thus, without waiting for the strike to take It is not the desire of the company to deprive

Thus, without waiting for the strike to take place, the company forced the issue by notifying such of its locomotive engineers as belonged to the Brotherhood that they must choose between the company and their association. This act, on the part of the company, was fully justified by the fact that the Brother hood was about to become the aggressor, and had laid the usual foundation for a declaration of hostilities by a formal advance of 20 per

cent. in wages. Had the members of the Brotherhood, upon they preferred the Brotherhood to our employment, we could have supplied their places quietly with other men, and we would not only have parted with them with regret at losing many good engineers, but would have been glad to have given them proper certificates of character and competency which would have enabled them to procure situations elsewhere; and such a dignified course on their part would have commanded the sympathy and respect which every right-minded person must feel for one who gives up his employment rather than surrender his own convictions of right, how ever erroneous those convictions may be. But, unfortunately for themselves, this course was not pursued, and, however criminal in the eyes of the law the subsequent conduct of the men has been, they have, since they left the employment of the company, been guilty of no greater ception they practiced during the last two and the notice thereof issued before the presenweeks of their service.

midnight on Saturday, April 14th, had pre-the public as a justification for the course of viously given their personal assurances to the the Brotherhood. officers of the company that they intended to Be this as it may, however, the men did quit remain in its service, and six representative work at midnight, and within a day or two their men, of whom all but one have since left the places were all supplied.
service of the company, met in conference with

the general manager to discuss the details of the insurance fund proposed by the company, suggested a change, which was adopted, and from the president of the Reading Railroad, stated that its provisions were as liberal as could be expected.

It is very evident that the object of all this deception was to luli the company into a feeling formation was received that the Reading Rail- of fancied security, and prevent any attempt road Company had been selected on account of being made to secure new men, so that at a its supposed financial weakness as the next concerted signal all the Brotherhood would victim upon which the Brotherhood of Loco- leave in a body and the company, without men motive Engineers was to inflict a visitation for to run the locomotives, be forced to take back

The publicity given to the original circular of eible that the difficulty with the Boston and the company of March 27th resulted in many Maine Railroad Company delayed for some time applications being made for positions as engithe intended attack; but upon the 15th of neers, and up to April 14th the written applica-March the first formal move was made by a tions for such situations exceeded the number written request for an advance of 20 per cent, of engineers belonging to the Brotherhood upon the wages of engineers and firemen, to who have since left us. But up to Friday, take effect April 1st. This demand was signed April 13th, we had no reason to doubt the perby W. H. Parker, W. J. Sweigard, Lewis Arnold, sonal integrity of any of our engineers, except Samuel Kepner and William Luckins, as a com- some of those running upon the Germantown mittee, and was presented by them in person and Norristown Branch, who were suspended to the general manager of the company, who the previous Saturday. Most of the men had at once responded by stating that a formal been in the service of the company for many written answer would be made to the request, years, and had always been respected and esbut that, of course, the men knew it would be teemed by its officers. When such men, thereimpossible to secure on advance. After making fore, gave their personal assurance of their inthe reply, Mr. Wootten plainly asked the com- tention to remain at their posts, implicit faith was given to the promise, for up to this time er, in the event of a refusal, the men would the company never had any reason to doubt quit work on the 1st of April. To this inquiry the word of honor of any of its employes. No attempt, therefore, had been made up to April 14th to secure new engineers, and applicants for position were informed that it was doubtful whether any new men would be required. But while the company, trusting implicitly to the faith of the promises of its employes, was engaged with leading men among them in providing a fund to secure a provision for their families in case of accident or death, the Brotherhood Engineers were quietly laying their plans to desert the employment of the ompany in a body, and everything boing in readiness for this act, on Saturday morning, April 14th, the following letter was sent to the eneral manager :

Mr. J. E. Wootten, General Manager P. & R. R. R. Co.—Dear Sir: The Grievance Committee of the Brotherbood of Locomotive Engineers of P. & R. R. Co. request an immediate interview. Please inform us by telegraph whether you will meet us or not, as it is of the ulmost importance that we should see you. We desire an interview not later than 13 o'clock, noon, to-day.

(Signed,) W. H. Parker, Chairman.

At an interview had in the afternoon of the same day at Reading, the following written proposition was presented to Mr. Wootten:

proposition was presented to Mr. Wootten:

PHILADELPHIA, April 13, 1877.

J. E. Wootten, General Manager Philadelphia and Reading Railroad—Dear Sirs: We, the undersigned committee, representing the locomotive engineers on the Philadelphia and Reading Railroad and leased lines, did hold a meeting at the Merchants' Hotel on the above date, where the following preumble and resolutions were unanimously adopted:

Whereas, On March 27th the Philadelphia and Reading Railroad Company did, by its president and general manager, cause to be printed circulars which were served upon the engineers, members of the Brotherhood of Engineers, the purport of said circular being that they should renounce their allegiance to the organization or be compelled to leave their situations; therefore. tions; therefore,

ization or be compelled to leave their situations; therefore, Resolved, That we, the Grievauce Committee, wait upon J. E. Wootten, E.-q., for the purpose of expressing to him that said circular is antagonistic to the fundamental principles of our order, and also as uncalled for as it is unjust, and that we will not accede to its demanos, in which action we express the unanimous desire of engineers and firemen who have been suspended or quit voluntarily. Further, that we demand the immediate reinstatement of such engineers and firemen to the places filled by them prior to the issuing of said circular.

Resolved, That all engineers and firemen who have participated in this trouble shall not be discharged without first having been notified by the proper officials of the Philadelphis and Reading Railroad and leased lines, who shall receive a committee of engineers and arbitrate all difficulties, said committee to be paid full time by the company when convened to settle any difficulties.

In conclusion, we wait your approval or rejection, and respectfully ask your immediate w. J. Sweigard, S. J. Dameman, E. O. Tyler,

S. J. DAMPMAN, E. O. TYLER, LEWIS ARNOLD. DAVID COOPER

The above was, of course, instantly rejected, and at midnight of April 14th, in obedience to orders telegraphed from the headquarters of the Brotherhood, at Cleveland, most of the being informed that they could not retain their Brotherhood engineers, with many of their firepositions without severing their connection men, quitted the service of the company, all of with the association, notified as promptly that them having, it is believed, personally received a notice, of which the following is a copy:

To the Engineers and Firemen of the P. & R. R. and Branches.—In view of the recent circular issued by J. E. Wootten, general manager, we have determined to stop work at 12 o'clock, midnight, April 14th. Ali trains on line of road at that time must be taken to destination. All engineers and firemen who comply with this notice will be supported by the Brotherhood.

W. H. PARKER,
W. J. SWEIGARD,
S. J. DAMPMAN,
E. O. TYLER,
D. COOPER,
L. ARNOLD,
W. LUCKINS.

Committee.

The above notice, with the exception of the words italicized, is printed, but is not dated, and in view of the hour at which the interview with Mr. Wootten took place, it is obvious that moral wrong than they committed in the de- the determination to quit work was arrived at, tation to Mr. Wootten of the proposition, the A large majority of those who quit work at rejection of which was to be made use of with

[Continued on page 5.]

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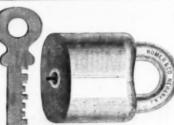
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Books Closed, New Books Opened, Books and Accounts Carefully Examined.

CHAS. W. ANDERSON, 34 Cliff Street, New York. [Continued from page 3.]

The Reading Engineers' Strike.

Much as the company has a right to complain of the manner of quitting, it had no right to find fault with the men for preferring to quit their service rather than surrender their membership in the Brotherhood. Of the propriety of this course, the men themselves were the est and only judges. The company respected their decision upon this point as final, and not only made no efforts after April 14th to induce them to change their decision, but at once supplied their places with new men. Here the whole matter should have ended, and those who quit work should at once have endeavored to secure other situations, in order to impose upor their association the expense of their support in idleness for no longer time than was absolutely necessary to enable them to secure new places; and as good citizens, they should have acquiesced in and respected the undoubted moral and legal right of their employer to de cide for itself whom it would or would not em-

Under the belief that it was an element of weakness to have its locomotives run by men bound by oath to an allegiance to their association greater and higher than that owed to their employer, the company simply exercised an undoubted legal right in determining to employ no members of the Brotherhood, but it contemplated no other attack upon the Society it had no design whatever to reduce wages it was acting entirely for itself, and not in concert with or on account of any other railroad companies. It had no desire directly or indirectly to prevent the employment of Brotherood engineers by other companies, and each member of the Brotherhood who had properly severed his connection with the company, upon being informed of its decision in the premise would have been cheerfully furnished with proper testimonials and recommendations to procure new situations.

Instead of following this obvious path of duty, which would have preserved their association from any defeat, the Brotherhood has changed the issue and made a direct attack upon the company, and instead of endeavoring to procure new situations, the men who quit their work are leagued with others to compel the company, as they say, to surrender and take them back to their places. In other words, three or four hundred men, two-thirds of whom never belonged to the Brotherhood, and voluntarily quit their places, are now confederated together to disturb and annoy their old employer, in the belief that they can induce its employes to leave their posts to such an extent as to compel it, against its will, again to take them into its employment, and the Brotherhood of Locomotive Engineers throughout the United States is using its influence and wasting its

means in aid of this absurd and insane scheme The new claim thus put forth is not, that its nembers have the right to refuse to work for any particular company, for as to this there can be no doubt, but it is, that the Brotherhood of Locomotive Engineers can force any company to employ its members. The mere statement of this claim is sufficient to show how preposterous it is, and the Brotherhood will have none but its own officers to thank for the inevitable defeat it must meet with in attempting to en-

But it is not only of the enormity of the claim tself, but of the means used to enforce it that the company and all law-abiding citizens have the right to complain.

I am sure that some of our old engineers, athers of familles, and owners of property, many of whom have spent the greater part of their lives in the service of the company, and respect, must be heartily ashamed of the acts

of some of their associates. For ten days the operations of the Reading annoying system of interference and obstruction that in no other country in the world would have been tolerated by the civil authorities for a single moment. A few hundred discuring the services of new men, or even re- ation. And yet at such a time when for every of rewards and continued support have been rakemen and conductors have been led to join at which the intention was deliberately announced of circulating printed statements all. unsafe to travel upon, in order to frighten passengers and reduce the receipts of the com-pany. An organized attempt has been made to threaten merchants with the loss of custom if they received their goods over the Reading Railroad. At all events the train hands have een constantly annoyed by solicitations to leave the company, and at three several places hose who dared assert their right to labor have peen subjected to jeers and taunts for so dong. At one place the only hotel keeper in the town was prevailed upon to refuse to give board or lodging to an engineer who had taken the place abandoned by one of the Brotherhood, and a citizen of a free country, in one of the most enlightened counties of the State found himself an outcast, without food or shelter, and an object of scorn and batred for daring to assert his right to labor for the support of himself and family. Upon the Catawissa Railroad a quantity of soda was surrep titiously placed in a tank with a view of deceiving the engineer and burning out the engine. The so-called Grievance Committee has held road, destruction of property, and theompe- The loss is about \$10,000,

ency of engineers, with a view of alarming the public and affecting the revenues of the company, and while the daily press has tee hese reports, I have as yet seen in the public journals no reference whatever made to the fact that every one of the acts above recited constitutes a criminal conspiracy for which, both at common law and under the statute, every participator can be convicted and senenced to fine and imprisonment, and for which in indictment can be found in any county in which a single act in pursuance of the conpiracy was committed.

If the misguided men now acting in hostility o their former employer will consult any repectable lawyer they will find that a combina ion of men, leagued together to compel a ailroad company to take them into its employment, by the commission of such acts as those above recited, is a criminal conspiracy punishable by fine and imprisonment, and I am sure that the sober second thought of most of the men themselves, whose character, prior to this, has been without reproach, will convince them that they had better let the company alone, and as quickly and quietly as possible secure em ployment for themselves.

It is but due to the large number of old employes remaining in the service of the comoany, whose character for intelligence and competency has been attacked by their former ssociates, to state that they are, in all respects, fully equal in capacity, experience and intelligence to those who left the service of the company, and as, in selecting new men, the com pany has been able to make choice out of a great number of applicants, it has been enabled to take those who have brought the best recom mendations, and thus, in nearly all cases, to ecure good men.

It must be remembered by the public that he large majority of its old engineers, several of whom were members of the Brotherhood, have remained in the employ of the company. Up to Saturday night, the 21st inst., out of a total of 380 old engineers we had lost but 178: out of 380 firemen we lost but 127, and out of 1405 conductors and brakemen we lost but 57 so that 83 per cent, of experienced train hands yet remain in the service of the company, and, mee Saturday, the applicants to return have been greater than the desertions. And it may. without exaggeration, be stated that for every vacancy there are at least fifty applicants; and m order to guard against any further surprise or treachery, the company has a large reserve of extra engineers, who are kept constantly riding upon engines in order to learn the curves, grades, signals and stations of the road, and be ready at a moment's notice to take any engine which may be deserted by its driver.

While it must be borne in mind that no ques tion of wages is now involved, it must not be forgotten that the conflict was precipitated by demand for 20 per cent, increase of pay, and it will, perhaps, be proper to state that prior to the rupture the company was paying the following rates of wages:

To Coal Train Engineers, from \$2.65 to \$2.97 per day, according to length of time in the service of the

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o Passenger Train Engineers
o Firemen on Coal Trains....

It must be remembered that in the service of the Philadelphia and Reading Railroad Company and the Philadelphia and Reading Coal and Iron Company, there are for every one loomotive engineer nearly sixty other men, every one of whom has been obliged to submit to a reduction of wages imperatively demanded by the depressed condition of business. Upon what grounds do the locomotive engineers have always been treated with kindness and claim to be exempt from a rule to which all others have had to submit?

A locomotive engineer who formerly got \$3.75 per day and has been reduced to \$3 per Railroad have been conducted subject to an day can still procure all the comforts of life and maintain his family in decency and respectability, but the poor laboring man, who used to get \$2, and is now obliged to content himself with \$1, or even less per day, has pinching appointed men, thoroughly organized and act- want ever staring him in the face, and the loss ing through committees, have engaged in a of a few days' work may break down the only conspiracy to prevent the company from se- barrier he has been able to erect against starv taining those of their present employes. Offers man's place there are one hundred applicants, the Grievance Committee of the Brotherhood made to all engineers and firemen who would of Locomotive Engineers gravely asks workeave the service of the company. Some freight ingmen to quit work, abandon their situations, and starve, so that their own association may in the movement, and they in turn have held be enabled to bring the company to terms and meetings opened with the mockery of prayer, secure an exemption from a rule which, during the last few years, has been submitted to by

> Those who work with their hands are but too prone to attribute to their employers a desire to oppress them, and are apt to lend a ready ear to the eloquence of demagogues and organizers who make their living by declaiming gainst the tyranny of capital; but of all forms of oppression the most tyrannical and despotic is that which a trades union exercises over the poor. For many years the company of which I am president has been the advocate and champion of the right of the individual laboring nan against the tyranny of trades unions, and now that the Brotherhood of Locomotive Engineers no longer has any influence over its employes, it can point with pardonable pride to the fact that among all of its twenty-two thousand men, not one will hereafter be obliged to submit to the degradation of asking his fellow workman for leave to earn his daily bread.

FRANKLIN B. GOWEN, President. PHILADELPHIA, April 24, 1877.

The long bridge of the Columbus, Springfield and Cincinnati Railroad Company, over daily sessions at which exaggerated reports Scioti River, west of Columbus, O., was dewere publicly circulated about accidents on the stroyed by fire on the evening of April 28.

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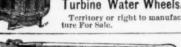
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Buildings with iron fronts have had a remarkable immunity from fire. Two extraordinary fires, however, have occurred and deserve mention. At precisely 25 minutes past 6 o'clock in the evening of Monday, February 7, 1876, a fire was discovered in No. 444 and 446 Broadway. So sudden was the outburst of the fire and so rapid was its progress even at the beginning, that, although the firemen were prompt in response to the alarm, they found the heat from the burning building so intense that they were from the start compelled to fight shy of the element they came to conquer. Nos. 444, 446, 448 and 450 comprised two double store buildings of 100 feet frontage, running through to Crosby street, a distance of 220 feet. The fronts on Broadway were of cast fron, five stories in hight above the sidewalk, beside the basement and sub basement-seven floors in all. The fronts on Crosby street were of brick above the cast iron work of the first story. The first story openings on both streets were fitted with rolling iron shutters. There being many floors, and the floor timbers and the flooring strips being of yellow pine, abundant materials for published independently of the oods stored on the several lofts. The buildngs and their contents were totally destroyed. As a spectacle the fire was one of the most brilliant of the kind. For three hours it held 30,000 persons enthralled by its awful grandeur, and its brilliancy illuminated not only New York, but shed a lurid light upon the church steeples and towers of Brooklyn and Jersey City. The roof and floors of these buildings soon fell in. The appearance of the Crosby street front was unique and fascinating. The rolling shutters on the first story were red hot, and, being softened by the heat, were bent inward like sails upon a mast in a stiff gale. The windows above, being unprotected, were open and filled with flame. The upper portion of the wall suddenly bent outward and was poised for a few seconds over the sidewalk, to which it finally fell with a thundering crash. At the same time, as the rear wall thus fell, the entire iron front on Broadway went down to the ground. The width of the street and the opposite sidewalk was encumbered with the broken portions of the iron front. There was scarce a brick or other fragment of debris outside the curbstone of the burned buildings. Another great blaze at night occurred on

Wednesday, March 7, 1877. Shortly after 8 o'clock a fire alarm was telegraphed to half the engine houses down town, and was immediately responded to by the sharp rattling of the pon derous machines up Broadway, followed by the lighter hose carriages and book and ladder trucks. In unusually short periods a second and a third alarm was signaled, and soon all the engines in the lower part of the city were hurrying to the scene of canger. The building on fire proved to be the large iron front struc ture, Nos. 1, 3 and 5 Bond street, known as the Waltham Building. It was one of the ordinary modern store structures, built of a combination of brick walls, wooden floor timbers and an iron front. It rose to an imposing hight. The usual floor light and skylight openings and elevator shafts were not wanting. Not unusual, the floor timbers were of yellow pine, full of sap. Nos. 1 and 3 formed a double store, and a party brick wall made No. 5 a single store. The frontage was 75 feet, and on the side and rear ran an alley. The front on Bond street was of cast iron, together with a short return on the alley. The front on the alley was entirely of brick above the level of the street, and the rear wall was of brick above the first story. This first story work consisted of a lintel course, H shaped columns and folding iron shutters or doors. The first story openings of the front were fitted with rolling iron shutters, and all the window openings on the side and rear had outside folding shutters. The building was well encased and guarded against burglars and fire from the outside These all proved impediments to the entrance of the firemen. Upon the shutters and gratings sturdy blows of ax and mallet fell with little effect. For a while the street resounded with the clang of steel upon iron, and the hook and ladder men, annoyed and excited at being baffled, plied th more wildly than usual and backed away the sheet fron, behind which the fire was burning without bindrauce. At length the ironwork gave way, and then there burst forth a volume of smoke that in an instant filled the neighboring streets, and rolled upward in dark clouds. At the same time the red glare of the fire was thrown from the windows of the upper story. The whole building seemed to leap into flames They are through the dividing brick wall be tween Nos. 3 and 5, and a total destruction ensued. On the buildings an insurance of \$180, 000 was carried, and the property in the build-ing-mostly jewelry and silverware, and much of that in strong safes-was valued at about \$1,500,000.

On the morning after the fire all was a level ruin-nothing standing of the outer walls except the ironwork of the first story rear and the greater portion of the iron front. It was decided to pull down the front. Ropes were placed around the columns and carried across Bond street, where the firemen tugged away until they fell. One column at No. 5 resisted the efforts of 24 men. A tackle, used for hoisting safes, was then employed; the rope was wound round the axle, and the vertical line of columns slowly leaned toward the street and fell, finally, with a crash, to the street, splintered and hoisting rope, costs less than thirty dollars, into fragments, The columns fell clear across and is therefore within the reach of any Bond street. Directly opposite, at No. 6, farmer, as the saving of laborers' wages would preparations were being made to turn a dwellbox columns lay in the gutter. These were strictly to a wholesale basis, all the retail busi-

* From advanced sheets of a second edition of Architectural Iron Work," by Wm. J. Fryer. ware trade,

broken and rendered useless by the falling olumns pulled over into the street. The damage, though apparently slight, amounted to \$400. The street was littered with cast iron A vertical line of columns would fall, but their connections held good; they would shatter into pieces in every part, except at the point where they were connected one to mother; the ears and bolts (almost without exception) remained unbroken.

The Broadway fire resulted in a loss of \$2,000, 000 worth of property, and the Bond street fire of a sum not much less. The buildings were practically of the same class. To the eye of the ordinary observer they seemed to be "fireproof." They presented an outside appearance of solidity and safety that compared most unfavorably with the construction of the interior. In truth, each building was a forest of yellow pine, with an iron front, and communication established everywhere through well holes, elevator shafts and apertures for steam and other pipes. In the Bond street buildings two slight fires occurred between the date of their erection (1869) and their final burning. A portion of the flooring was taken up and the space between the wooden floor beams was found stuffed with shavings, the work of lazy carpeners who had preferred leaving their rubbish in the building to taking it out before laying down the floor strips. There is little doubt hat the same thing occurred on every floor People talk of the mysterious outbreaks of fire, and of the rapidity with which fire spreads!

Now, what are the lessons these and other fires teach? Is it that cast iron fronts are a failure? On the contrary. I went over the ruins of the great fires in Chicago and Boston and spent days in their examination. The earlest recollection of my boyhood dates to the great fire that swept over the city of Albany in 1848-to the burning of my father's house. In the matter of personal courage I give way to few men. But I dread fire.

It is simply impossible to construct a buildng that shall be indestructible when a raging fire on all sides-acres, perhaps, in extent-is beating against it and overlapping its walls and coofs with its fierce and hungry fury. Under such circumstances a building will be con sumed-calcined, even-and the most that ould be said of a fire-proof building, however onstructed, in such a fearful crisis, would be that it would not add, in itself, to the intensity of the fire which consumed it. This the fires n Portland, Chicago and Boston proved.

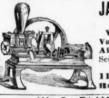
I do not advocate extremes. But the only way in which any one man's building, however carefully constructed, would be entirely safe s to bave the buildings of all his neighbors as carefully constructed and as reasonably fireproof as his own. I would not abolish wood-

work, but use it sparingly.

Take a commercial palace like the burned Bond street building as an example. Wooden foor beams should never have been used. The destruction of that building was chiefly due to the open spaces left between the lath and plaser of the ceiling and flooring planks-hollow, dry, tinder-box flue construction of the floorstogether with the stud partitions, thus forming air chambers filled with dry wood and com nunicating from cellar to roof. Rolled fron floor beams should be used in such a building, and the spaces between filled with burned clay of the common brick or other form. True these very wrought iron floor beams and girders and cast iron supporting columns need to be encased in plaster to make them really fireproof. I have already disavowed extremes. I simply urge a construction that will give reasonable immunity from fire at a reasonable cost; to so build that, notwithstanding much woodwork in the inside finish, and though the conteuts be of highly inflammable materials, a fire could be early checked and controlled. The word fire-proof may have a very doubtful sigofficance, but there are a very large number of buildings which are to all intents fire-proof, and in which nothing less than a huge bonfire of all the furniture, books and papers that could be collected together in any one room, ould endanger their destruction. They are safe from any ordinary casuality. Happily this class of buildings is increasing in numbers. A construction with wooden floor beams has nothing but economy of first cost to recommend it, and should be abandoned.

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PUMPS, CENTRIFUGAL PUMPS, PISTON PUMPS, for Tanners, Paper Mills, Fire Purposes, situations impegnable.



Also, HAND FIRE ENGINES. RUMSEY & CO.,

Seneca Falls, N. Y., U. S. A. nch House, 93 Liberty Street, N. Y MARCUS C. HAWLEY & CO., San Francisco and scramento, Cal., General Agents for the Pacific Coast L. M. RUMSEY & CO.,
Branch House, S11 N. Main St., St. Louis, Me.

UNIVERSAL, No. 2.

vi Kinch. Re'au, 57:50; per Over 360,000 of this size bave Eowell's Cog-Wheels at (No. 25 Smaller Roll, \$83.) politan Washing

SWEDISH and RUSSIAN

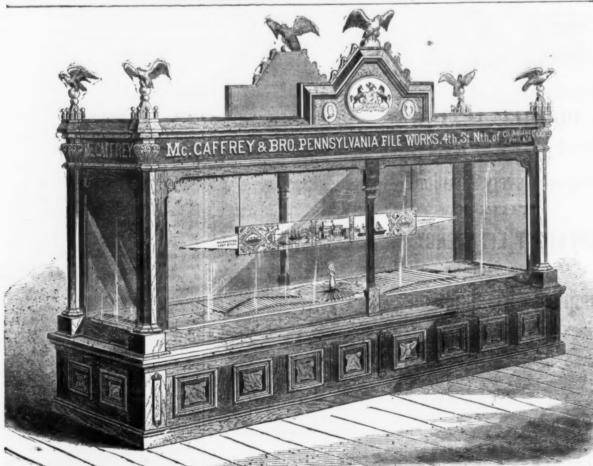
Pawtucket, R. I.

The American File Company have the exclusive right to use the Bernot process for cutting files. By this method all the strantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of files made by different makers, and of files made from different steels, and with various shapes and angles of tooth. They have thus reduced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained No Lie, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at random from their stock. Their machines are capable of the bast delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works.

Price lists and information furnished on application.

AMERICAN FILE CO., Pawtucket, R. I.



These FILES and RASPS are all Hand Cut and Warranted to do more work than any other brand in the market.

AUBURN FILE WORKS,

MADE FROM IMPORTED STEEL. EVERY FILE WARRANTED. FULLER BROS., Sole Agents, 89 Chambers and 71 Reade Streets, N. Y

ESTABLISHED 1848.

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HARRIS' PATENT ENAMELED

GEO. E. WEAVER, Providence, R. I.

GOLD MEDAL

PATENTED JULY 25, 1871.

RE-ISSUED MAY 13, 1873, and JUNE 9, 1874. In this Strap ineliability of the leather to stretch and become loose and porous is prevented by the use of a patented non-extensible base, which supports the leather and secures

PERMANENT ELASTICITY.

We make this style with single rod, double rod, and wood frames, and intend that it shall, in quality compare favorably with our other well known brands.

BENJAMIN F. BADGER & SON, Manufacturer Badger Place, Charlestown, Mass.

ELIAS G. HELLER. PETER J. HELLER. We invite the attention of the trade to our Celebrated American

MM Horse Rasps

GEO. E. HELLER. JOHN J. HELLER.

HAND-CUT. Manufactured by JOHNSON & BRO. No. 1 Commercial Street. Newark, N. J.

Established 1835. TRADE MARK ON STAM & Horse Rasps MATTEAWAN John Rothery's N.Y.

HAND-CUT FILES and RASPS, Made from English Cast Steel. JOHN & WILLIAM ROTHERY,



Putnam's Government Standard FORGED

Hammer Pointed HORSE SHOE NAILS

READY FOR DRIVING. Manufactured from the best of NOR WAY Iron dwarranted to give entire satisfaction.

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Black Diamond File Works.

H. BARNETT,

39, 41 & 43 Richmond St., Philadelphia. St. Louis, Mo., SEMPLE & BIRGE MFG. CO., Agents, THOS. TAYLOR, 43 Chambers St., N. V., Agent for N. Y. and N. E. States.

THOS. JOWITT & SONS, SHEFFIELD.

FILES.

Hand and Tempered by an CORPORATE MARY ROLLERS, TILTERS & Forged, Ground and Cut by

CAST, SHEAR & BLISTER STEEL

IRONS. Granted according to Act of Parliament, and Registered in Germany and the United States.

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ESTABLISHED IN 1816.

NO CONNECTION WITH ANY OTHER HOUSE.

PETER A. FRASSE & CO.,

No. 95 Fulton Street, New York.

AGENTS for the American Screw Co.'s Machine Screws and Taps. SOLE AGENTS Thos. Turner & Co.'s, Files, Horse Rasps. Hubert's French Emery Paper.

IMPORTERS OF STUBS' Files, Tools, Steel Wire.

"GROBET'S Pine Swiss Pinishing Files.

"VAUTIER, NICOUD and RENARD Gravers.

"JEWELERS' and Machinists' Supplies.

BEALERS IN Scroll Saw Machines, Bracket Saws, Wood and Patterns.

CHARLES B. PAUL,

Manufacturer of HAND CUT FILES.





The Ausable Nails

Are Hammered Hot,

And the Finishing and Pointing are Done Cold,

Thus Imitating the Process of Making Nails by Hand.

Quality is Fully Guaranteed.

For Sale by all Leading Iron and Hardware Houses.

ABRAHAM BUSSING, Secretary, 35 Chambers St., New York.



Ten Eyck Axe Mfg. Co

COHOES, N. V. Warehouse, 103 Chambers St., N. Y. Manufacturers of

AXES

Of all kinds.

Hatchets, Adzes, Grub Hoes, Mattocks and Picks.

Catalogues and Price Lists furnished upon application.



Machinery Manufactured by Crane Bros. Mfg. Co CHICAGO.

OOKE & BEGGS, Agents, 16 Cortlands Street, New York.



Agricultural Chain, Wagon Chain.

We furnish a better article for less money than any concern in the country.

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SCROLL SAWS.



From \$5.00 to \$40.00 each. A new and perfect foot power Saw for \$5.00—high speed, beveling table, 18 inch swing, 1½ inch stroke, finger guard and hold down for the work; folds up in small space when not in use. for Bracket Saws.

Designs, Saw Blades, &c.

Send for 14 page illustrated list. AGENCY FOR Racine Hardware Mig. Co., Flower Pot Brackets, Aquaria, Jewelers' Machinery, &c. Benj. F. Badger & Son, Razor Straps.

Johnson Bros., Hand Made Files. W. J. Clark & Co., Automatic Fountains, &c. Wilson Bros., Chas. Lehman, J. A. Scollay, Carl Deiterich, &c. Price lists furnished on application

G. WEBSTER PECK, Manufacturers' Agent, 110 Chambers St., New York.

PRIZE MEDALLISTS:

London, 1862; Oporto, 1865; Dublin, 1865; Paris 1867; Moscow, 1872; Vienna, 1873, and Highest Award and Medal at Centennial Exhibition, Philadelphia, 1876.

CLARK & CO..

Original Inventors and Patentees

Noiseless Self-Coiling Revolving STEEL SHUTTERS,

FIRE AND BURGLAR PROOF.

Rolling Wood Shutters

Of various kinds. Clark's Shatters are the Best and Cheapest in the world. Are fitted to new Tribune Building, Lenox Library, Delaware and Hudson Canal Co.'s Building, Transatlantic Steamship Co.'s new Dock, American News Office, &c., Posey County Court House, Mt. Vernon, Holt County Court, Oregon, Mo. Also to buildings in Boston, Chennati, Detroit, Janesville, Wis., Baltimore, Canada, &c. Have been for years in daily use in every principal city throughout Europe, and are indersed by the Leading Architects of the World.

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AN INDESTRUCTIBLE COATING FOR LRON, TIN, OR WOOD, PRINCE'S METALLIC PAINT CO.,

Manufacturers, No. 166 Fulton St., New York. Caution.—As certain parties are offering for sale a SPURIOUS PAINT, under an imitation name, purchasers will please see that our Trade-Mark is on every package. None other genuine.

NEWLIN & YARDLEY,

337 Market St., Philadelphia. HARDWARE JOBBERS. And Manufacturers' Agents.

SOLE AGENTS FOR Steel Wood Screws.

Also Brass, Round and Flat Head Blued Screws.

COLUMBIA LOCK CO., RIM AND JAIL LOCKS AND KNOBS.

Rim Locks, 4 in. Cam Fastening, \$1.66 per doz.; Mineral Knobs, \$1.00 per doz.;
Porcelain Knobs, \$1.40 per doz. In lots of 10 doz., 10 per cent, off cash,
Other sizes and descriptions of Locks at relatively low figures to the trade.

WM. BALDWIN'S CAST STEEL. EACH BAR WARRANTED.

Also Solid Cast Steel Hammers and Tools, C. S. Hatchets, Hand Axes, Patent Eye Picks and Mattocks

B. & R. Marshall's C. S. Shovels, Spades & Scoops. Patent Solid Box Vises. WILEY'S PATENT OIL CABINETS

for holding Lubricating and Burning Oils, for Warehouse, Factory and

FLORENCE TACK COMPANY. Tacks, Shoe and Finishing Natis at manufacturers' quantity price MANUFACTURERS OF

Ship, Coil and Brake Chain, AND JOBBERS OF HEAVY AND SHELF HARDWARE,

At Manufacturers' Prices. J. Russell & Co., Cocoa Handle, Bolstered Knives & Forks,

KELLOGG & CO., Foundry & Machine Shop. FINE GRAY IRON CASTINGS a specialty.

Unsurpassed Facilities for Light Machine Work. Japanning

and Tinning done to order.

Prices low and quality of work as good as any made. Correspondence solicited ALSO MANUFACTURERS OF

Union Chain & Cable Co., CURRY COMBS, COOLEY'S PATENT WHIP RACKS, BORING MACHINES, MORTISING MACHINES, &c.

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SUPPLIES, in every variety,

For Railroads, Mills and Manufacturers.

Send for new Illustrated Catalogue, 272 pages.

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Warerooms, 35 Chambers St., N. Y.

ANSONIA CORRUGATED STOVE PLATFORM



Section Showing Edge.

Ansonia Brass & Copper Co. Office, 19 & 21 Cliff Street, NEW YORK.

The Ansonia Corrugated Stove Platform, with its heavy figured ogeo border, is believed to be the best Platform offered to the trade. As shown in the illustrated section herewith it requires no nailing to keep it in place or to prevent it from turning up at the edge; while the metal is of sufficient thickness to require no lining.

no lining.

The low price, superior quality and find finish of this Platform will be readily acknowled edged. Packed 100 in a case Send for price list.

LIST PRICES REDUCED.

DARLING, BROWN & SHARPE

Providence, R. I.

MANUFACTURERS OF

United States Standard Steel Rules, HARDENED CAST STEEL TRY SQUARES,

STANDARD WIRE GAUGES,

TOOLS FOR ACCURATE MEASUREMENTS.

New Illustrated Catalogue, issued March 1, sent per mail

INDUSTRIAL ITEMS.

MASSACHUSETTS

The Washburn Car Wheel Company, at Worcester, started their foundry week before last after an idleness of two years, and are to work on their newly invented simple method of combining a cast iron wheel with a half steel tire. with the prospect of soon enlarging the works.

The Chester Emery Company have increased their help. Hampden Emery Company are unable to fill their orders, though running night and day; and the Mica and Porcelain Company are doing a good business.

The iron ore beds, bought of the Leets by the Richmond and Stockbridge iron companies 25 or 30 years ago, are proving a good investment even in these hard times. The Richmond Company is now working on the right of the Stockbridge Company, on the Nathaniel Leet farm, north of the road, and pays the latter s ovalty of \$1.50 a ton.

The Agawam Iron Mills, at East Warcham, which have been lying idle for the last six years, have been leased by E. Robinson and others, of Boston, and will be put in thorough epair at once, and started up in the rolling of

hovel and tack plates. The Dighton Pipe Manufacturing Company nave sold out. The Iron Pipe Combination Company are the purchasers.

CONNECTICUT.

Eight steamer cargoes of arms and ammunition have been taken to Turkey from this coun try. This included, beside, five or six similar argoes which have gone by sailing vessels.

Negotiations are in progress with the Provi dence (R. I.) Bolt and Butt Company to remove their factory to the Norwalk Iron Works, at South Norwalk. NEW YORK.

The Lockport Hoop and Band Iron Works, which have been idle for eighteen months, are

The Jagger Iron Company, of Albany, are taking some twenty tons of iron ore a day from the Beget & Perry bed at Cheshire, Mass.

The Abendroth & Root Manufacturing Com-pany, of Green Point, L. I., are very busy with their spiral tubing, having received several large orders of late. The company are erecting a large extension to their present works, 75 x100 feet, and intend doubling their present capacity.

Labor disturbances and union restrictions once removed, so that every workingman may dispose of his own labor without hindrance or danger, and carn his bread in peace, Troy would soon realize a marked revival in trade; our industries would spring into life; want and mendicancy would in a large degree cease, and the working classes of all others would be most benefited. It is a shame to Troy that working people who accept places to earn an honest livng outside of union control do so at personal peril, have to be barricaded in fort-like buildings for protection, and when they go out must have a police escort to insure their personal safety. When will this reign of terror cease ?-Troy Times.

The Altoona Globe understands that an order has just been received at the Pennsylvania Railroad Company's shop in that place for the immediate erection of ten new locomotives of the "I" class.

The Catasauqua Dispatch says: The South Mountain Railroad and Pine Grove Iron Works will be sold at trustee's sale in Philadelphia

some time in May.

The East Pennsylvania Iron Company's property, in Berks county, was sold by the sheriff for \$71,000, and is said to be worth \$150,000. Seventy-two cars in four trains, loaded with

1780 Champion reapers and mowers, from Springfield, Ill., lately passed through Pittsburgh, consigned to one firm in Harrisburg. The Palo Alto Mill, at Pottsville, has been idle

for several years. None but watchmen have been employed for over a year past. The rolling mill at Chickies (Becker & Rein-

hold) has not been in operation since October, Workmen are now engaged in repairing two

hot blasts at No. 3 of the North Lebanon furnaces. The furnaces of Cornwall are all in successful

operation at present, excepting one, which is undergoing repairs. The Pennsylvania Railroad Company are using

worn out steel rails at its car wheel foundry in Altoona in the manufacture of chilled car wheels. The experiment is pronounced a suc-It is stated that the Catasauqua Mill is filling

a California order for 1000 tons of muck bar. PITTSBURGH AND VICINITY.

Brown & Co., of the Wayne Iron and Steel Works, have recently received inquiries from London and Berlin for the prices of their "U.

S." iron plates. The inquiries are the result of the exhibition of this brand of iron at the Centennial Exhibition. Both heating plate furnaces in the Sligo Rolling Mill, Phillips, Nimick & Co., are now

in operation for the first time since the panic. The miners of Armstrong's Works, at Buena Vista, on the Connellsville Railroad, are on a strike, their wages having been reduced from three cents to two and a half cents per bushel.

The miners on the Allegheny side of the river are The miners on the Allegheny side of the river are willing to go in at the reduction; but these living in Armstrong's houses seem determined to stand out, and keep the others out with them.

Mr. John J. Williams, at Graff, Bennett & Co.'s Millvale Works, is building a reverberatory furnace in connection with the Danks furnaces, to prepare the fix for the latter. As the chief

to prepare the fix for the latter. As the chief trouble with the Danks furnace has been the fettling, if this attempt to prepare it for the furnaces is a success, the problem of rotary puddling will be solved.

The Dunbar Furnace is in a healthy condition again, having recovered from its chill,

The glass manufacturing trade indicates ome activity now that the strike of the window blowers is at an end, and the gatherers have announced their intention to go to work, although the Union will stand against any such action.

And now to wit, April 27, 1877, it is alleged that the strike of the glass gatherers is not at an end, and that they will not return to work unless they get the increase in wages demanded. Nevertheless, the manufacturers are rekindling their fires, and say that there is no searcity of hands for all the work there is to

be done. Practically then the strike is over. The firm of Cunninghams & Ihmsen has eased the factory of Plunkett & Co., on the South Side, and have started in making fruit ars as a specialty.

Wilson, Walker & Co. are using Wheeler's patent in the manufacture of combined iron and steel.

MARYLAND.

The Republic fron Company have commenced shipments of ore to Marquette.

One of the mills of the Ætna Iron and Nail Company, of Bridgeport, opposite Wheeling, the other day turned out the heaviest day's work yet reported. With one furnace, in eight hours and forty minutes, they rolled 20,513 pounds of 5-16 round from

All the mills at Ironton are running. Olive Furnace will blow in the latter part of

Himrod Furnace is making 45 tons of Besse-

er per day. At Youngstown the Eagle and Tod furnaces are both running successfully, as are the Falcon and Phænix and Himrod No. 1. No. 2 is undergoing thorough repairs. A new bosh, bel and hopper have been put in, and the furnace has been thoroughly cleaned. The furnace will blow in immediately. It went out of blast

four months ago. The Peerless Oil Stove Company is the name of a new organization formed at Cleveland for the purpose of manufacturing a summer stove.

Mr. Rouse, of the firm of Myers, Rouse & o., and Mr. Waterbury, of the Cleveland Stove Co., have formed a partnership for the manufacture of stoves at Cleveland.

The new machine for making horseshoes, which has been in progress of building at the Fulton Foundry, in Cleveland, is completed and works well, giving entire satisfaction. Mr. S. M. Carpenter has just returned from a trip East, where he went to make arrangements for putting in several of these machines. The new machine is a ponderous one, but it will

turn out shoes very rapidly. H. A. Crossley, of Cleveland, has recently ompleted a newly patented screw propeller, which has been attached to one of the river boats, and seems to be a valuable improvement over the old style of propellers. He expects to put one on each of twelve boats of a line plying between Canada and the United States By this new improvement the inventor claims a great additional speed is gained.

Bonnell, Botsford & Co., iron merchants at Youngstown, who handle a large portion of the roduct of the mills of Brown, Bonnell & Co., of that place, report business increasing very fast, and quite a number of orders in advance of the supply. The mills are running full.

The spike works of Messrs. Wick, Kramer & Goff, at Youngstown, are running full. There are three machines running on bolt and railroad spikes. They manufacture their own iron for spikes and bolts from pig metal, made at the Briar Hill Furnaces.

The Himrod Iron Company, at Youngstown, will blow in their other furnace between the 1st and 10th inst. They are selling all the iron that they can make in both furnaces. Their stock at furnace is low and is all sold.

MICHIGAN.

Stack No. 1 of the Jackson Iron Company's Furnace, at Fayette, has been blown out for repairs. No. 2 has not been making iron for ome time. The stock of ore at the Bay Furnace has been

exhausted, and the fires will have to be banked until a fresh supply can be obtained. The Champion Mine will commence ship-

ments this spring from stock piles aggregating The Menominee Furnace is doing some ex-

traordinary work with soft wood charconl. The Herald says that she made week before last 2511/4 tons, and wants to know "how is that for slabs?" to which we answer good, decidedly good. But we think the Herald is mistaken in claiming it to have been better work than ever before accomplished by a furnace of the same size. If we are not mistaken several furnaces, among them the Bay, Bangor and Scotia, have made larger runs, though the difference in the quality of coal used should be taken into account, and when that is considered, the work of the Menominee Furnace is certainly hard to beat, and if we had the say in the premises she should have the broom .- Journal

Fifty thousand tons of ore have been raised this winter at the Republic Mine

Work is progressing satisfactorily on the new merchant mill of the Baugh Steam Forge Company, Detroit. It will be ready for business about the first of June.

There are some iron rails on the main track of the L. S. & M. S. Railroad, near Gibraltar,

MISSOURI.

The Vulcan Rail Mill is at work on steel rails, no iron being rolled at present.

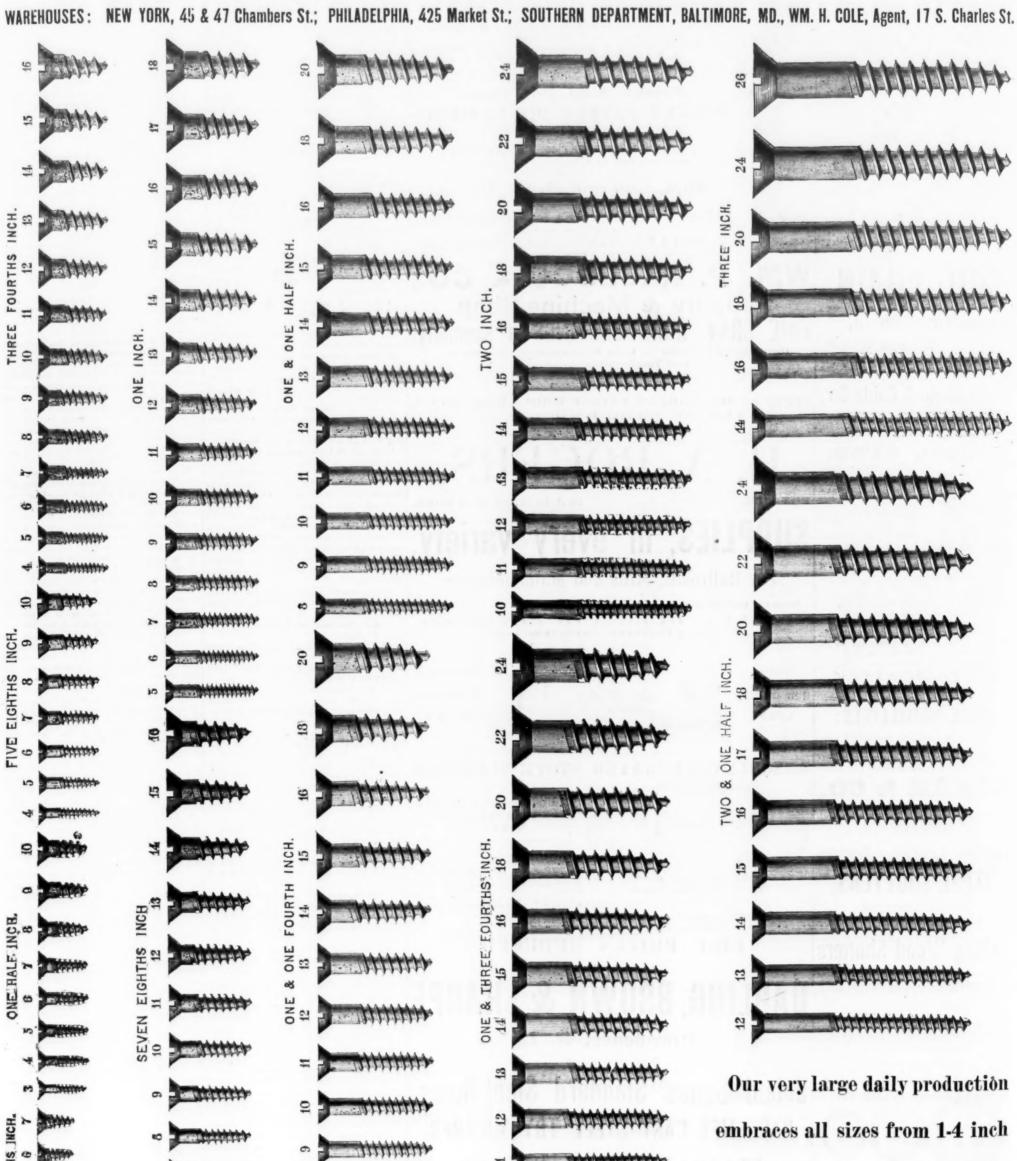
KENTUCKY. The Louisville Plate Glass Manufacturing Company have gone into bankrupicy. Liabilities, \$135,000; assets, \$126,000.

RUSSELL & ERWIN MANUFACTURING COMPANY

Manufacturers of HARDWARE.

NEW BRITAIN, CONNECTICUT, U.S. A. FACTORIES.

MANUFACTURERS' AGENTS AND DEALERS IN GENERAL HARDWARE AT OUR



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to 4 inches in length. All orders will be filled promptly.

Cutlery.

FRIEDMANN & LAUTERJUNG



Solid Steel Scissors, Shears, Razors, Russia Leather Strops, Hones, &c.

"ELECTRIC RAZORS," And the "ELECTRIC SHEARS." Nickel Plated Bows.

Agents for the BENGALL RAZORS.

AMERICAN TABLE CUTLERY, BUTCHER KNIVES, &c. 91 Chambers and 73 Reade Sts., N. Y. 423 N. Fifth St., ST. LOUIS, MO.

MERIDEN CUTLERY CO
Received the HIGHEST/CENTENNIAL PRIZE.



MANUFACTURE ALL KINDS OF TABLE CUTLERY.

sive Makers of the "PATENT IVORY" or Celluloid Knife, the most durable WHITE HANDLE

a. The Oldest Manufacturers in America. Original Makers of the HARD RUBBER HANDLE,

recall for "Trade Mark" "MERIDEN CUTLERY CO." on the blude. Warranted and sold by all Dealers

lery, and by the MERIDEN CUTLERY CO.. 49 Chambers Street, New York.



THE MILLER BROTHERS CUTLERY CO.,

PATENT FINE PEN & POCKET CUTLERY

WEST DERIDEN, CONN.

The only Knives made that are put together in such a manner that there is no strain on the covag or frail part of the knife. We warrant our knives equal in cutting qualities and workmanship to any de, and are acknowledged by English makers as the Best American Knife. We also make NICKEL & SILVER PLATED POCKET KNIVES

which will not rust or become discolored when used as a Fruit Knife, and their cutting qualities are equal to any other knife. Orders filled from the factory, and in New York by Messrs. J. Clark Wilson & Co., No. 81 Beckman Street (who have a fall stock of all patterns always on hand), and also by Messrs. G. B. Walbridge & Co., No. 99 Chambers Street.

NAUGATUCK CUTLERY CO., Manufacturers of FINE PEN & POCKET CUTLERY.

Cutlery.

ESTABLISHED 1852.

NEW YORK KNIFE CO

MANUFACTURERS OF SUPERIOR

Fable & Pocket Cutlery

MATERIAL.

WALKILL RIVER WORKS, Walden, Orange Co., New York. THOS. J. BRADLEY, President

BRICGS ENGLISH HARDWARE. WOSTENHOLM'S (IXL) POCKET KNIVES KNIVES & FORKS, RAZORS, ANVILS, VISES,

Young's Patent Folding Scissors.



AMERICAN PEN AND POCKET KNIVES.

PEPPERELL. Aaren Burkinshaw. AB MASSACHUSETTS

My Blades are forged from the best Cast Steel, and warranted. To me was awarded the Gold Medallo he Connecticut State Agricultural Society; also a Medical Diploma from the Mass. Mechanica' Ass'n Sept., 188

Established 1853 AMERICAN SHEAR CO.

Pen and Pocket Cutlery, ars, Scissors and Pruning Shears,

HOTCHKISSVILLE, CONN. , 298 Broadway, New York, with Landers, Frany & Clark,

HALL, ELTON & CO.,

Electro Plated Ware, German Silver and Britannia Spoons.



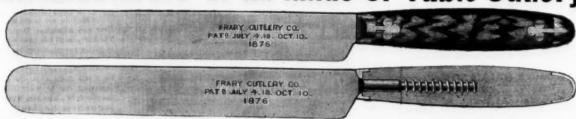
Factories, Wallingford, Conn.

Salesroom, 75 Chambers Street, New York

CUTLERY COMPANY,

FACTORY, Bridgeport, Conn. NEW YORK OFFICE & WAREHOUSE, No. 82 Chambers St.

Manufacturers of all kinds of Table Cutlery



The above Illustrations represent their New Patent Screw Tang Lock Fast Solid Handle Knife.

There is no question but that a solid handle Knife is much more preferable than a seel tang. The great objection to their use hitherto is, that no solid wood handle has been placed on the market with the handle properly secured—no handle put on with cement will stand the wear and tear of every day usage. The cement will expend and contract with the action of heat and cold, and become loose, crack and come off, causing great prejudice against their use. This objection is overcome in our patent acrew tang. A wood screw is welded to the tang of the Knife or Fork, and screwed firmly and securely in the handle and looked there by the bolster, making a very strong heat and handsome knife, which we warrant never to get loose, crack or come off. We manufacture a large variety of patterns, both Table, Butchers and Carvers, and furnish the batent handle nearly as low as the scale tang. We are prepared to furnish this line of goods, together with the scale tang and iron handle, very promptly, and very respectfully invite the attention of the trade.

Manufacturers and Importers of IVORY, PEARL AND STAC

Table & Pocket Cutlery,

SCISSORS, RAZORS

No 26 CLIFF ST., NEW YORK.

W. C. BURKINSHAW, Agent. P. O. Box 204.

Harrison Bros. & Howson, THE ROGERS CUTLERY CO.



House Furnishing Goods. Cutlery & Silver Plated Goods.

Cutlery.

JOSEPH S. FISHER, No. 411 Commerce St., PHILADELPHIA

George Wostenholm & Son, "Limited."
Washington Works, SHEFFIELD,

Celebrated I-XL Cutlery, Razors,&c

WALTER SPENCER & CO., Steel and File Manufacturers,

Corporate Mark

NOSPENCER ROTHERHAM

Granted 1777.

W. HARROLD

Birmingham and Sheffield, ENGLAND.

Importer on Commission

HARDWARE, CUTLERY, GUNS, &c.

W. SANDERS, Agent, 76 Reade Street, N. Y



Joseph Rodgers & Sons' CELEBRATED CUTLERY,

No. 82 Chambers Street, New York. F. & W. CLATWORTHY, Agents.

The demand for Joseph Rodgers & Sons oductions having considerably increased, they have, in order to meet it, greatly extended their Manufacturing Premises and Steam power. To distinguish Articles of Joseph Rodgers & Sons' Manufacture, please to see that they bear

their Corporate Mark. VAN WART, SON & CO.

Hardware Commission Merchants, EXPORTERS AND IMPORTERS, BIRMINGHAM, - ENGLAND,

McCOY & COMPANY,

George H. Gray & Danforth,

F. W. TILTON.

17 Old Levee Street, New Orleans.
At each of these places a complete assortment of samples of Hardware and Fancy Goods will be found, in cluding all new descriptions. Sole Agents for John Rimmer & Son's Celebrated Harness and other Needles.

W. Clark's Genuine Horse Clippers. Seydel's "Ashantee" Pocket Hammock McCOY & COMPANY,

BORAX A SPECIALTY,
134 & 136 Duane St., New York.

OWEN & CAMPBELL, Pen and Pocket Cutlery.

10th & Diamond Sts., Philadelphia,

ALFRED H. HILDICK,

12 Warren St., N. Y., Importer of
Birmingham Heavy Hardware, Chains,
Anvils, Vises, &c.
Agency of HILL BROS. & CO., WALSALL, ENGLAND,
GENERAL HABDWARE MERCHANTS,
And of



CARSON'S PATENT KITCHEN SINK.

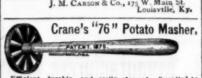
"The Kitchen Sink heads the list by which people violate universal Sanitary Law," G, E. Waring, Jr.

pays Dividends in Health. Economy is road to Wealth.

The above Cut represents the Carson Sink, an Article which combines Two very important features in Domestic Economy, It prevents the pipe from choking and at the same time furnishes grease enough to make soap for the Family and is perfectly oderless.

Health and Economy are its main features of excellence. Send for Circular and Prices.

J. M. Carson & Co., 175 W. Main St. Louisvtlle, Ky.



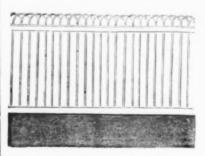
Iron Fence Pickets

Messrs. Lewis, Oliver & Phillips, iron manufacturers, of Pittsburgh, Pa., have introduced ome newstyles of iron fence pickets. These pickets are made from % round iron, bent to rnamental shapes, as shown in the accompany-

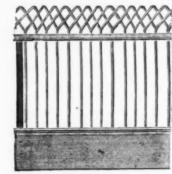


Fig. A.

ing cuts, and sold at a small advance on price of Figures A and B are the styles first made, and Figure C. shows the new siyle just completed and ready for the market. This style of iron fence can be readily put up, and when painted makesa very neat and artistic fence. The cost per lineal foot is about the same as that of the ordinary wood



picket tence, while in durability, saving in repairs, painting, etc., there is a very considerable saving. The pickets for the Western trade are cut 3 feet 3 inches in hight; those for the Eastern trade are cut 2 feet 10 inches in hight. These pickets are in use in



everal places in this city, notably upon many of the new platforms of the Elevated Railroad, where they seem to give great satisfaction. They combine lightness of appearance with great strength. The cost of a fence 2 feet 10 inches high, we believe, is only 25 cents per running foot. Henry B. Newball, 11 Warren street, represents the firm in New York.

A Bullet Proof Car .- The Baltimore Sun says : "There has just been completed at the car shops at York, Pa., the first bullet proof car ever manufactured in the United States. The car is 31 feet long, 8 feet high, and furnished with all the latest improvements in ventilation, etc. The body below the windows is covered with 34 inch iron and panels between the windows and the body above covered with 3-16 inch steel. The windows can be closed with steel slides, and when they are down the entire car is builet proof. The interior is richly ornamented, and in appearance inside and out resembles a first-class passenger coach. It weighs about 6500 pounds, and was ordered by the Spanish government for use in Cuba." This may be the first builet proof passenger coach, but it is certainly not the first bullet proof carever built in the United States. The writer assisted in 1862 in Luilding a bullet proof car, which was used for some time on the Atlantic and North Carolina Railroad, then run by the United States military forces. The car was made by putting up a stout frame on an ordinary flat car and boarding it over, the planking being covered with boiler plate on the sides and old rails on the ends, which were inclined. The car was armed with a small brass howitzer and had a number of loop-holes for musketry. It was shown to he bullet and even shot proof by actual demionstration on several occasions.

The business men of the Sandwich Islands are in consternation because the Pacific Mail advertisements have been ordered out of the papers at the islands. The talk is now about forming a company at Honolulu to buy and operate two 1000 ton steamships between that port and San Francisco. The only objection to this, in case a withdrawal of the Pacific Mail steamships actually takes place, would seem to be the number of sailing vessels now Efficient, durable, and easily cleaned. Supplied to the trade only. Samples sent free to responsible over, would probably drive nearly every sail easted circulars and price into the ROSERT CRANE, Jr., Columbia, Lancaster Co., Pa

AMERICAN BOLT & NUT WORKS, Cincinnati.

Anchor Iron & Steel Works,

CINCINNATI, O.

Bar Iron.

Carriage Bolts,

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TOWER'S PATENT Double Shovel Plow.

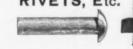


Combines more good points than any other; adjustable handles; depth perfectly regulated from end of beam; adjustable foot; shares can be drawn down till worn out; perfect BREAK PIN, by substituting wood plns for either at the foot bolts. Write for prices and discounts. Freight equalized to all important places.

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MILLDALE, CONN.







W. C. BOONE, and 30 Humboldt St., cor. Debevoise, Brooklyn, D., N. Y. Manufacturer of Standard

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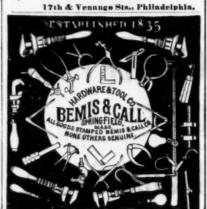
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SCREW BOLTS. Lag Screws, Tap Bolts, rews, Bolt Ends, Turn Buckles SAMUEL HALL'S SON,

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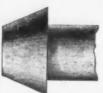


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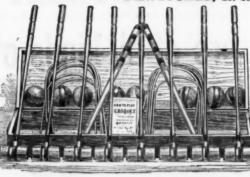


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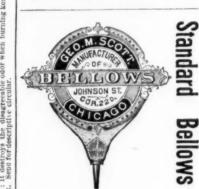




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220 South Fourth Street. THOS. HOBSON, Manager.

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City subscribers will confer a favor upon the Publisher by reporting at this office any dellinquency on he part of carriers in delivering The Iron Age; also, he loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and inten-tion to enforce this rule in every instance.

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by a General War.

The following statistics of recent compilation show the imports and exports of each country according to late returns, excepting a few of minor commercial impor-

In M	illions of	Dollars,	Gold.	
	Eu	rope.		
		Import.	Export.	Total.
Great Britain	1875	1.869.70	1,408.05	3,277-95
Germany	1874	918-25	381.55	1,499-80
France	1875	707:40	774:38	1.481.78
European Rus-				.,
sia	1874	389 95	351:97	741:96
Austria	1875	274:65	275.45	550°10
Holland	1875	292.60	227.92	520:59
Belgium	1874	258:50	222.90	481:40
Italy	1875	243:08	211.20	454:58
Spain	1874	76:40	80.60	157.00
Turkey	1873	93:00	50.00	143.00
Sweden	1873	74.25	68:35	136 60
Denmark	1874	64.72	49.90	114.68
Norway	1874	51.55	83:68	85.17
Malta	1874	42'90	88.35	81.25
Portugal	1873	81.70	26:70	58*40
Roumania	1875	16:20	28.43	44.63
Greece	1874	24:05	15.10	89-15
Servia	1872	6 57	6.18	12.75
		5,435.47	4.444.95	9,880.42
	4 101	erica.	4,444 00	0,000 40
United States British N. Amer-	1875-76	460.55	540 00	1,000.55
ica	1874	112.20	96.68	209-18
Brazil	1873-74	85.87	106:70	192.57
Argentine Re-	4.000	80.07	E4-04	444.05
	1875	59.97	54:08	114 05
	1875	40.85	38.63	79:47
	1876	80.00	85:00 80:00	65 00
	1873-74	25.00	25.40	55 00
Mexico British West In-	1874	28.45	40 40	53.85
dies	1874	26.00	25.60	51.60
Uruguay French West In-	1873	21.07	16.10	87-17
dies	1872	14:15	13.97	28-12
Venezuela		12.40	15.00	27:40
Porto Rico		15.30	9.10	24.40
Central America.		10.00	13.30	23-30
	1874	9.35	13.80	23.15
	1874-75	6.92	9.98	16.90
	1872	7.55	8 25	15'80
		5.75	5:00	10.75
	1874	1.00	2.00	3.00
	1873	1.00	1.20	2.05
British Honduras		190	1.02	1.95
St. Domingo		1.17	0.08	1.32
French Guiana	1012	1.11	0.00	1 20

);		As	la.		
L,	British India	1875-76	192.60	281.00	473.6
	China		115:25	117:15	232-4
	Sunda Islands		54.75	40.37	95.1
	Java	1872	13.95	35.65	49.6
	Japan	1875-76	25.70	18.05	43.7
	Ceylon	1874	21.85	.21.00	48.8
	Sumatra	1873	13.95	16.40	80.3
•	Cochin-China		8.70	16.60	25.3
	Asiatic Russia	1873	7.90	17.00	24.9
	Persia	1874	12.80	7.60	20.4
	Siam		4.40	4 95	9.8
	French India		1.40	3.80	5.3
	Formosa	1872	1.60	2.00	3.6
	Labuan		.40	.20	-19
	Total		475:25	582-07	1.057:3

Australasia.

975.60 1,060.91 2,086.51

Queensland 1874 14 15 18 80 32 95 Tasmania 1874 6*20 4*60 10 80 Sandwich Isl'ds 1876 1*50 1*80 3*30 West Australia 1874 29 2*10 2*30 Alfrica Egypt 1875 29*30 66*00 95*30 Algeria 1873 41*20 30*40 71*60 Cape 1874 29*75 21*10 48*85 Mauritins 1874 12*12 13*45 25*57 Morocco 1874 6*40 7*15 13*55 Reunion 1872 6*30 6*10 12*40 Tunis 1874 5*08 5*70 10*78 Natal 1873 3*12 3*00 6*12 Zanzibar 1873 2*30 1*98 4*28 Portuguesc possessos 1874 1*80 1*25 3*05 Tripoli 1873 4*6	South Australia.	1874	19.90	55.00	41.90
Tasmania 1874 6*20 4*60 10*80 Sandwich Ial'ds 1875 1*50 1*80 3*30 West Australia 1874 *20 2*10 2*30 Africa Egypt 1875 29*30 66*00 95*30 Algeria 1873 41*20 30*40 71*60 Cape 1874 29*75 21*10 48*85 Mauritins 1874 21*12 13*45 25*57 Morocco 1874 6*40 7*15 13*55 Reunion 1872 6*30 6*10 12*40 Tunis 1875 6*30 6*10 12*40 Tunis 1875 6*33 4*17 10*50 Senegal 1872 3*12 3*00 6*12 Zanzibar 1875 2*3 1*8 4*28 Portuguese possessions 1874 1*8 1*25 3*0 ***Tripoli 1874 1*35 1*40	Queensland	1874	14 15	18:80	32.95
Sandwich Ial'ds. 1876	Tasmania	1874	6.50	4.60	10.80
West Australia 1874 20 2·10 2·30 Africa Egypt 1875 29·30 66·00 95·30 Algeria 1873 41·20 30·40 71·60 Cape 1874 27·75 21·10 48·85 Mauritius 1874 12·12 13·45 25·57 Morocco 1874 6·40 7·15 13·55 Reunion 1872 6·30 6·10 12·40 Tunis 1874 5·08 5·70 10·78 Natal 1875 6·33 4·17 10·50 Senegal 1872 3·12 3·00 6·12 Zanzibar 1873 2·30 1·98 4·28 Portuguese possessions 1874 1·80 1·25 3·05 Tripoli 1874 1·35 1·40 2·75	Sandwich Isl'ds.	1876	1.20	1.80	3.30
Africa. Reypt. 1875 2930 6600 9530 Algeria. 1873 4120 3040 7160 Cape. 1874 27.75 2110 48.85 Mauritins 1874 1213 1345 25.75 Morocco 1874 640 7.15 13:55 Reunion. 1872 6:30 6:10 12:40 Tunis. 1874 5-68 5-70 10:78 Natal. 1875 6:33 4:17 10:50 Somegal. 1872 3:12 3:00 6:12 Zanzibar 1875 2:30 1:98 4:28 Portuguese posessions. 1874 1:80 1:25 3:05 Tripoli. 1874 1:35 1:40 2:75	West Australia		-90	2.10	3.30
Reypt 1875 29°30 66°00 95°30 Algeria 1873 41°20 30°46 71°60 Cape 1874 27°75 21°10 48°85 Mauritius 1874 12°13 13°45 25°57 Morocco 1872 6°30 6°10 12°40 Reunion 1872 6°30 6°10 12°40 Natal 1875 6°33 4°17 10°50 Senegal 1872 3°12 3°00 6°12 Zanzibar 1875 2°30 1°98 4°28 Portuguese possessions 1874 1°80 1°25 3°05 Tripoli 1874 1°35 1'40 2°55			221.45	197.55	419.00
Algeria 1873 41°20 30°40 71°60 Cape 1874 27°75 21°10 48°85 Mauritins 1874 12°12 13°45 25°57 Morocco 1874 6°40 7°15 19°55 Reunion 1872 6°30 6°10 12°40 Turis 1875 6°33 4°17 10°50 Natal 1875 6°33 4°17 10°50 Senegal 1872 3°12 3°00 6°12 Zanzibar 1875 2°30 1°98 4°28 Portuguese possessions 1874 1°80 1°25 3°05 Tripoli 1874 1°35 1′40 2°75		A	frica.		
Algeria 1873 41°20 30°40 71°60 Cape 1874 27°75 21°10 48°85 Mauritins 1874 12°12 13°45 25°57 Morocco 1874 6°40 7°15 19°55 Reunion 1872 6°30 6°10 12°40 Turis 1875 6°33 4°17 10°50 Natal 1875 6°33 4°17 10°50 Senegal 1872 3°12 3°00 6°12 Zanzibar 1875 2°30 1°98 4°28 Portuguese possessions 1874 1°80 1°25 3°05 Tripoli 1874 1°85 1°40 2°75	Egypt	1875	29-30	66.00	95.30
Cape 1674 27.75 21.10 48.85 Mauritins 1874 12.12 13.45 25.57 Morocco 1874 640 7.15 19.55 Reunion 1872 6-30 6-10 12.40 Tunis 1874 5-08 5-70 10.78 Natal 1875 6-33 4-17 10-50 Sonegal 1872 3-12 3-00 6-12 Zanzibar 1875 2-30 1-98 4-28 Portuguese posessions 1874 1-80 1-25 3-05 Tripoli 1874 1-35 1-40 2-75	Algeria	1873	41.20	30:40	71.60
Mauritins 1874 12:12 13:45 25:57 Morocco 1874 640 7:15 17:55 Reunion 1872 6:30 6:10 12:40 Tunis 1875 6:33 4:17 10:50 Natal 1875 6:33 4:17 10:50 Senegal 1872 3:12 3:00 6:12 Zanzibar 1875 2:30 1:98 4:28 Portuguese possessions 1874 1:80 1:25 3:05 Tripoli 1874 1:35 1:46 2:75			27.75	21.10	48.85
Morocco 1874 640 7'15 13'55 Reunion 1872 6'30 6'10 12'40 Tunis 1872 6'30 6'10 12'40 Natal 1875 6'33 4'17 10'50 Sonegal 1872 3'12 3'00 6'12 Zanzibar 1875 2'30 1'98 4'28 Portuguese possessions 1874 1'80 1'25 3'05 Tripoli 1874 1'35 1'40 2'75			12.13	13.45	25.57
Reunion 1872 6:30 6:10 12:40 Tunis 1874 5:08 5:70 10:78 Natal 1875 6:33 4:17 10:50 Senegal 1872 3:12 3:00 6:12 Zanzibar 1875 2:30 1:98 4:28 Portuguese possessions 1874 1:80 1:25 3:05 Tripoli 1874 1:35 1:40 2:75		1874	6.40	7.15	13.55
Tunis 1874 508 570 10°78 Natal 1875 633 417 10°50 Senegal 1872 312 300 612 Zanzibar 1875 29 198 428 Portuguese possesaions 1874 180 125 305 Tripoli 1874 135 140 2°75		1872	6.30	6.10	12.40
Natal. 1875 633 4·17 10·50 Sonegal. 1872 3·12 3·00 6·12 Zanzibar. 1875 2·30 1·98 4·28 Portuguese possesions. 1874 1·80 1·25 3·05 Tripoli. 1874 1·35 1·40 2·75		1874	5*08	5.70	10.78
Senegal 1872 3°12 3°00 6°12 Zanzibar 1875 2°30 1°98 4°28 Portuguese possessions 1874 1°80 1°25 3°05 Tripoli 1874 1°35 1'40 2°75		1875	6:33	4.17	
Zanzibar 1875 2:30 1:98 4:28 Portuguese possessions 1874 1:80 1:25 3:05 Tripoli 1874 1:35 1:40 2:75	Senegal	1872	3.12	3.00	6:12
Portuguese pos- sessions 1874 1.80 1.25 3.05 Tripoli 1874 1.35 1.40 2.75		1875	3.30	1.98	
sessions 1874 1°80 1°25 3°05 Tripoli 1874 1°35 1°40 2°75					
Tripoli 1874 1.85 1.40 2.75		1874	1:80	1.25	3.05
			1.35	1:40	

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Europe																							 						9,880-49
America																													2,036.51
Asia																													1.057:35
Australia.																													
Africa		0	0	a	0 1											0				0		0				0	0		906.30
Total																													19 600-52

In the event of a general war, the following nations may be involved:

Total Import and Ernort Trade

Great Britain a																				
France and her																				
Germany																				
Russia											 		۰			 	 			766
Austria							ĸ		. ,	. ,				*			 			550
Italy											 									481
Turkey and de	pe	en	ıd	le	n	C	ie	3.5	١.								 			309*
Greece																				
Persia								0	0	0	 	0		0				0		20%
Total																				0.048

world's trade.

From these figures we can form some idea of the magnitude of interests that may be involved in the course of a single year, should the war, now fairly begun, Europe and their cis-oceanic possessions. The figures we have given merely represent the foreign business relations of these nations, not their immense internal trade. which on the continent at least, through jeopardy. Nor have our statistics reference to finances, which through war would

be equally affected. Considering the complications of what is comprehensively known as the Eastern stitute what is commonly known as a pubquestion, the ambition of Russia for territorial extension, the jealousy of the other great powers of any movement looking to the dismemberment of the Ottoman empire, the doubtful attitude of the Khedive the Suez Canal and her Indian possessions, it is by no means certain that we are not and Asia, of more serious and far reach-

Trade Interests Likely to be Affected tain that the issue of events near at hand scarcely be attributed to disinterested zeal advices from Washington state that the than now appears.

The American Institute of Mining Engineers.

We print on another page an article entitled "The Rules of the Institue," which we find in the Engineering and Mining Journal of April 28th. Of its merit as an argument, and the motives which prompted its publication in the "official organ" of the Institute, our readers can judge as well as we. Purporting to be an answer to our article of April 12, it is obviously disingenuous, raising a great cloud of dust over ninor matters of trivial importance, for the evident purpose of diverting attention from the fact that, under the present system, the Institute is practically an appendage to the "organ," and its meetings pleasant occasions for the collection of gratuitous contributions to the "organ's" olumns. Under these circumstances we fail to see any good reason why we should bandy words with the gentleman of the asterisk, whose long experience in various kinds of controversy has given him an exceptional facility in dodging a question while seeming to talk at it. The article on which he exercises his ingenuity was addressed to the membership at large, and like all previous articles concerning the Institute, was sent to the members for two reasons : 1st, because the organ would not print it; 2d, because it was right and proper the members should ree it entire, and not merely such a paraphrased and garbled version as it might suit the organ's convenience to present in its reply. In matters of this kind the gentleman's practice does not conform very closely to his "code of ethics."

As we have said before, we have no quarrel with the Institute nor with its organ. We have pointed out to the members certain features of the Institute management which we believe to be objectionable and inimical to its largest usefulness, and by so doing have unfortunately placed ourselves in a position of seeming hostility to the business interests of the organ's proprietors. Under the circumstances this was inevitable. We wish it were otherwise, but since it is as it is, and the organ stands between the Institute and the newspaper press of the country, we were compelled to advise a change which, if attended with embarrassment and loss of patronage to the organ, would, on the other hand, free the Institute of an incubus which it has already carried too long for its own advantage.

In taking the position assumed in our article of April 12th, we have no selfish purpose to serve. We certainly do not want "patronage" from the Institute. Thus far we have been able to live very comfortably on our merits as an independent newspaper. Those who want The Iron Age and do not already take it, are welcome to subscribe for it at our regular rates, but we do not ask that the Institute shall subscribe on behalf of those who do not want it. Any advantage we can derive from such changes as will give the members the right to print their papers where and when they choose after reading them, will be shared by every newspaper in the country which may be considered a desirable medium for their publication. It would also be shared by the members, who would enjoy the personal and professional benefit resulting from the wider publication of their papers in journals which are not willing to take them at second-hand and print them Fourteenth Page. - Trade Interests Likely to which would represent 72 per cent. of the weeks, or perhaps months, after they are read. In a word, we have nothing to plead for except abstract right. and nothing to defend except the interests of the members. If such suggestions as we have offered meet their approval, they gradually extend to the great powers of can act on them at the first convenient opportunity; if not, they can continue the present system until they are tired of itas a great many already are.

In assuming that, as regards the publication of its proceedings, the policy of the Steel Institute, the organ makes the unguarded confession that the printing of the information of members, does not conlication. If this is true, we see no good reason for continuing the pretense of making the ergan a newspaper, with a subscription price, &c. We are willing to

may not concern us much more deeply for the welfare and prosperity of the In- President and Secretary Evarts are warmstitute.

The Decline in Tin.

Instead of improving, as was expected during the latter part of 1876, the statistical position of tin has grown steadily more unfavorable. Production has continued to gain on consumption, and when correct statistics from the Dutch Islands in the East are to hand, the total output in 1876 will probably be found equal to that of the previous year. The following are the statistics of production for a series of years:

England	1872.	1873.	1874.	1875.
	Tons.	Tons.	Tons.	Tons.
	9,560	9,970	9,942	9,500
	6,149	7,335	7,206	7,925
	9,785	6,963	7,577	11,000
	150	2,990	5,800	7,218
Total	5,644	27,258	30,525	35,643

If general European trade had been in a normal condition, consumption might have successfully coped with this increase, but the business in metals has shown no revival on the other side, and to the slackened trade demand there is now added the apprehension of a tightening money mar-

Toward the close of 1876 a falling off in the shipments from Australia was predicted, based on a protracted drought, but they were soon resumed with increased activity, and on an average London has received nearly 600 tons per month from that quarter alone. Shipments from the Straits have decreased, being beside less steady than usual, owing to the silver fluctuations, and quite recently there have been troubles in the mining districts, which were, however, magnified by cable at the time, and have in reality proved of little consequence. But a further decline may interfere with production. If any decrease in the output is to be looked for by reason of low prices, it will be in the Straits settlements. The system of cheap labor in the Dutch colonies precludes the probability that low prices will check production. The Netherland Trading Society, moreover, now seems ready to meet the market freely with all the Banca it may have to dispose of.

With respect to the English output we down materially, say a couple of thousand the reputation they gained at the Cententons, but these predictions have remained nial. If our industries are well represented, unfulfilled. So far as we are able to arrive the American department will be the cenat an approximate estimate for 1876 we can ter of attraction; if not, visitors who as yet but repeat the figures we gave in know of our products only by report will

England. Benca Straits												۰							۰					Tons 9,40
Benca			 													0			۰					4,519
Straits																					,			9,52
Billiton.							×																	3,64
Australia	١,			,														0					۰	7,13
Total	ı												۰							a				34,21

a total decrease of 1430 tons.

The deliveries to consumption in Eng land, Holland and America were 25,301 tons, against 23,731 in 1875; an increase of 1570 tons. This would show a total gain of 3000 tons between the two items, still the visible supply is larger than ever, and prices are lower. This can, therefore, only be explained as follows: Some of the deto consumers, and confidence in the metal has been undermined.

The following tables show the statistical position of tin on the 1st of April, as compared with that at the corresponding date

of the two years preceding:		
Stock.		
1877. April 1. Tons. E. Tons. E. Tons. E. E. E. E. E. E. E.	1976. April 1. Tons. 6,725 2,600 912	1875 April 1 Tons 5,07 8,64 1,09
Aftoat.		-
Straits 547 Australian 2,500 Banca 526 Billiton 1,100	860 2,159 506 1,000	1,91 2,39 9 80
Total 4,673	4,525	4,49

papers in its columns, being merely for stock on May 1 of 300 tons, and April deliveries of but 1500 tons.

American Participation in the Paris Exhibition.

A telegram from Paris says that, after credit it with doing itself injustice in careful investigation and an interview foreign troubles, but it is by no means cer- is the best which can be devised, will great interest in the enterprise. Recent avail ourselves of this opportunity.

ly in favor of having the United States well represented, both as a matter of courtesy toward the French Republic, and for the benefit of Amerian manufactures and commerce. "A messsage recommending an appropriation and the employment of govern. ment ships to carry the goods to and from Havre, will be probably sent to Congress early in the extra session in June. There is only one sentiment current in regard to the Exhibition, and that is that action should be taken promptly and in a spirit which will secure a good organization of the American department and a creditable representation. It is expected, therefore, that a bill will be passed by Congress without unnecessary delay, creating a commission, to consist of a chief and assistants, to organize and carry on the work. The prominent officers of the Centennial Exhibition, who won great credit for their efficient management of the greatest of world's fairs, will doubtless have the preference for these appointments if they will accept. The names of Mr. Goshorn, John Welsh, Gen. Francis A. Walker, Prof. Blake and Gen. Hawley are mentioned. It is gratifying to observe that the work of preparation is not to slumber, however, until Congress acts. Mr. Nathan Appleton and others are maturing plans and interesting manufacturers. Much can be done in this direction before Congress assembles, and should be, since there is positively no time to be lost. It must be remembered that England and Canada are making elaborate preparations for the Exhibition. It is frankly admitted by the British press that England especially intends, if possible, to regain the prestige lost at Philadelphia. England will make a brilliant and extensive display, and there is little doubt that if the United States makes an imperfect one the memory of the triumphs of 1876 will pale before the results of 1878, and a disastrous blow be struck at American commerce in manufactures.

We have no doubt that our manufacwould remark that year after year we have turers are, generally speaking, fully alive been told a further decline would cut it to the importance of taking advantage of shrug their shoulders and turn away with the opinion that the reports of our ingenuity, and the variety, beauty and utility of our manufactures, are to be attributed rather to our hospitality than to our greatness as an industrial nation.

The German Hardware Association.

On another page of this issue we print matter of unusual interest to American, manufacturers of hardware. It is a statement of the plan of organization of the German Hardware Association; the conliveries have been to speculators instead of ditions under which offers by manufacturers will be considered, and some German views on the quality and price of American hardware. We shall probably receive in time for our next issue a statement of the requirements of the members of the Association for the next few months, from which our manufacturers desiring to establish new foreign connections can determine whether they are able to supply what is needed. What is said in the extract which concludes our article with regard to the quality and price of American hard ware, seems to us partly true and partly an error. We are sure that the praise bestowed upon the quality and finish is not exaggerated, but the difference in price is probably not so great as the writer of the The visible supply, it will be seen, was article assumes. That the members of the 17,260, against 14,762 in 1876, and 14,306 in Association are disposed to give American 1875. The price of Straits was £70. 10/ goods fair and favorable consideration, on the 1st of April, against £73 and £89; on is evident from their desire to put them-January 1, 1877, it was £75. 10/. It has selves in communication with American the movement of armies and the destruc- American Institute of Mining Engineers since gone down to £60, a decline of nearly manufacturers and to receive bids from tion of railroads, &c., would be placed in is the same as that of the British Iron and 9 per cent. in less than four months. Yes. them. In a letter to the editor of The Iron terday a rebound to £70 took place, not Age, under date of April 9th, Messrs. withstanding an increase in the London Rappe & Arndt say: "We should be very glad to have American manufacturers take part in the competition for our orders, and if they will furnish us with samples of suitable and seasonable goods at one of our depots at Dortmund, Hamburg, or, when it is established, in Berlin, we will give them every considera-"tion." We have no doubt that our manof Egypt, and England's vast interests in this particular for the sake of making a with the Commissioner General of the ufacturers can meet the demand in both point in argument; but if we are right in French International Exhibition, our quality and price in many lines of goods, saying that there is some difference be- Charge d'Affaires has sent to Washington and soon establish valuable connections on the eve of a great upheaval in Europe tween printing a paper in its columns and a report in favor of American partic- through the medium of the German assoprinting it in the form in which the papers ipation in the Exhibition. We are ciation, with but little trouble and expense. ing importance than any event which the of the Iron and Steel Institute are sent to the not surprised at this, considering the The experiment is worth a trial, at least, present century has witnessed. There is journals for publication, the anxiety of great importance of the Exhibition to and our English competitors, while less nothing now discernible which could men- the conductors of the organ to convince American manufacturers. We are also favorably situated, will not he sitate to take accour domestic peace or involve us in the members that the present system informed that the Administration feel a advantage of any neglect on our part to

mates me su chi and attention of some will be to sid ever and vat respace the

Strike Epidemics.

The existence of what have been termed If the manufacturer would know from mental epidemics" can hardly be experience the commercial value of a comdoubted, and it is no stretch of the imagin- fortable and well regulated shop, he has fall from the rich man's table. Place ation to regard strikes as one form of this but to step into some dark, ill-ventilated him, on the other hand, in a light, compopular malady. They are not normal, and uncomfortable corner and attempt to fortable, well ventilated shop and he feels arising from a distempered condition of the work for an hour or two. The discombody industrial; they are contagious and fort and the general dissatisfaction which joint. The rules of such a shop become spread with increasing rapidity, and in he experiences, will be great enough to various other particulars they display the make him understand that the comforts of characteristics of physical epidemics, es- light, ventilation, warmth in winter, cool- set of conditions it is impossible for him pecially in the maniathat often accompany ness in summer, etc., do actually pay the to feel an interest in his work or its per the latter. There seems to be such an epi- employer, and are not simply benefits to formance; under the other he cannot help demic of strikes upon the country now. the workmen. One of the most essential it. We have, or have had, within a very short things in this climate, and for a great part time, the locomotive engineers striking in of the year, is to have the shop or work New Jersey, Canada and Massachusetts; room properly warmed, and it is especially the molders at Troy, the coal miners in desirable that the floors should be warmed Western Pennsylvania, the glass workers at in order to have the workmen comfortable Pittsburgh; the steel workers, coopers and without danger of headaches and sleepiothers at Cleveland, and various other in- ness. We have in mind a monster buildstances at other points. As is well known, ing one story high, with a roof largely in most of these cases the strike has been composed of glass, which was considered financial standing and of the capital they will fatal to the one attacked. The locomotive too large to be warmed at all. The im- employ in their undertaking. We extract the engineers had a partial success in New mense radiating surface, the draughts of following facts from the report of the Asso-Jersey and Canada, but this was more than air from numerous doors, and the general ciation: compensated for by their defeat in the Bos- barn-like construction, were all to be compensated for by their defeat in the Boston and Maine Railroad strike and the action of the Reading Railroad in requiring their men to leave the Brotherhood, which great expense. Steam was used and the Messrs. H. Rappe and Gustav Arndt, of Dortschein and the strike and the action was a direct result of the previous strikes. While the molders' strike at Troy is not ended as yet, the advantage so far is with the employers. Some of these are running with non-union men and keeping up the quality of their work; others have made arrangements that will make the present demand for molders, less and force.

pipes laid so as to warm the floor. In puting up the heating apparatus little more in the present deficiency was hoped for than a mitigation of the discomposition with the Association.

III. To the Committee on Finance and Communities of the general meeting of the members, shall be given control of the business surprise of all concerned, that the whole building was comfortable. In general, it has mean the given control of the building was comfortable. In general, it has mean the given control of the personally responsible managers, shall not the personally responsible managers aball not the personally responsible managers aball not the personal property of the responsible managers aball not the personal property of the responsible managers aball not the personal property of the responsible managers aball not personally r present demand for molders less, and force is found that when the floor is warm the have some to seek other trades or labor; while rest of the building will take care of itin some cases the Union has succumbed. self. The coal miners of Western Pennsylvania In the summer time the greatest discomhave had a temporary success, but the end forts are the heat and too much sunlight. is not yet. The glass workers at Pitts- Awnings, shades, screens, curtains and burgh and Steubenville have yielded, the strike having ended on the 24th ult. by the comfort of the workmen also greatly tend last report amounted to 145,000 marks. complete surrender of the workmen, and to the production of better work, and are THE CONDITIONS UNDER WHICH THE ASSOCIAwhat is worse for them, even after their of themselves quite inexpensive. Fans surrender, it is not at all certain that many of the fires will be rekindled this season. pay their cost many times over. A work-At Cleveland the steel workers gave up man cannot do his best, in a hot and stagand offered to resume work if all the strikers were re-employed, but this was refused
and almost all the places have been filled

it. A blower, like Root's, or any of the
positive displacement blowers, takes but
be according to sample. All samples must be
little rower and is much better, on many and offered to resume work if all the strikby new men on the terms offered. At this writing the coopers' strike is accounts, than the centrifugal fans which not ended, but it can have but one result are too often arranged merely to churn the -the defeat of the men. There are too many idle men and too much overproduction for

the outcome to be any different. In reviewing these strikes and their results, especially in relation to the causes of the defeat of the strikers, there is one significant fact-men have always been found to take the strikers' places. It was so on the Boston and Maine Railroad, at Troy, and at all the points named. The fact is, there are hundreds of skilled mechanics out of employment, who are willing to work and glad to find an opportunity. In case of strikes the taunts of their fellows and the cry of "black sheep" and "scab" may restrain them for a while, but not long. They will not see any reason why they should refuse to work at prices that would pay them well in order that others, not themselves, may get a little better wages than those offering. This fact should not be forgotten by workmen who contemplate a strike. It shows that a different condition of affairs obtains, and that the power of strikers not only to prevent others from taking their places, but also their power to prevent defection from their own ranks, is not as great as formerly.

Practical Hygiene in the Workshop.

That much of the indifference of labor to the interests of capital is the result of an indifference on the part of employers to the comfort and well being of workmen is quite a safe assumption. It does not follow as a matter of course that an effort on the part of employers to show an inteiligent interest in the comfort of their men would at once make labor contented and tractable, but it would go far toward establishing a closer sympathy between masters and men than now exists, and result in large and immediate benefit to both classes. The fact that interest in them and their comfort is not always appreciated, and that employers are sometimes discouraged by evidences of base ingratitude, proves nothing but the weakness of human nature and the brutalizing effects of ignorance. We must expect this in some instances, and perhaps find it in some where we do not expect it; but the emplover who directs his attention to the problem of how to make the men in his workshop or factory healthier, happier and more comfortable, will be encouraged to persevere in the good work by considerations of self-interest. It pays. Whatever tends to elevate the standard of health and intelligence among workmen, to cultivate habits of neatness, raise their selfrespect and increase their desire and capacity for continuous industry, and make functory way, and contrasting his own a German master artisan who had visited the yard for commercial purposes. Her principal dithem feel an interest in their employer and 'miserable state with the larger enjoyments Cantennial Exhibition. In regard to the tools mensions are: Length (extreme), 292 feet; of selluloid coated pool balls,

labor.

other things of the sort that tend to the and blowers, where power is obtainable, nant atmosphere, and it is useless to expect little power and is much better, on many air over and over again. Fresh air blown into the room is a great advantage, and in many instances this can be done at no great expense. Workshops are often made very uncomfortable on account of low great expense. Workshops are often made very uncomfortable on account of low ceilings, or low roofs upon which the sun beats down, converting the room beneath the can be shown. remedied by roof tanks, sometimes by a false roof on top, or, in other cases, by a space between the roof and the ceiling of the different members of the Association for false roof on top, or, in other cases, by a space between the roof and the ceiling of the room below. In mills where there are furnaces, water screens are a great advantage, and should not be omitted. These are among the more important, and things that come to mind, and those which appeal directly to the workman. There are many other things which do not make as much show, nor appeal to the workman as strongly, but which tend to health and comfort, and which should by no means be omitted. Clean floors and clean walls are very important as affecting health, and should be looked after more generally. In many kinds of manufacturing much dirt is necessarily made, walls and ceilings are soon blackened, and, unfortunately, and the offers and the shosociation, the distribution of the distribution of the saccitation.

Buyers of the Association of the members of the Association, the different members of the Association, after which the undersigned firm concludes the arrangement with the manufacturers. All manufacturers are held to their respective offers for four weeks. Those who are not notified after the charcoal iron trade. But a blast furnace is only one of many projects. The association advertise that they want "200 non men to start furnaces and mills; 50 glass men to locate glass works (best of eand near both of their fadividual approval, after which the undersigned firm concludes the arrangement with the manufacturers are held to their respective offers for four weeks. Those who are not notified after the manufacturers whose goods can only be ordered according to drawings receive with the outlings receive with the committed. Manufacturers whose goods can only be ordered according to drawings receive with the outlings receive with the outlings receive with the outlings receive with the outlings receive with the manufacturers whose goods can only be ordered according to drawings receive with the outlings of the association and the increase are rangement with the manufacturers are not notified after the charcoal trade blast furnace is only one of manufacturers are allowed to remain so in most cases. We call to mind some workshops of this of the German Hardware Association the fol-The result is that everything cheerful, work goes on more easily, cleanof clean water should always be provided, German. and workmen encouraged to be cleanly in their personal habits. Water closets, cesspools, privies or earth closets and their fixtures should be made comfortable and kept perfectly clean and free from be said of the American hickory hammer and there is no communism. When this association anything that can offend the senses. ax handles. They are 20 to 30 per cent. dearer These and a dozen other little matters, now commonly neglected, are of great greater, and they are well worth the price.

'We will now consider American tools, which ideas about division of capital will change very importance in their aggregate influence. The direction of a man's development is of necessity must be of engrossing interest to much. usually determined by his environments. Herd him with swine in a stye, and he becomes a brute; put him among men and all of the most beautiful and well finished surround him with refining influences, and workmanship and of great practical value, but dirty workshop and compel him to pass ten hours per day in an atmosphere un-

he loses health and ambition. He dis-

charges his daily duties in a listless, per-

he is a slave toiling without larger compensation than a handful of the crumbs which the habits of his life, and he carries them with him into his home. Under the one

The German Hardware Association.

We print below a compilation of much inter est, which we commend to the consideration of our readers in the trade, especially manufac

In our issue of March 22d, we published ar article on the German Hardware Association.

I. The Association is founded with a capital

the personally responsible managers shall not have any voice in this ballot.

have any voice in this ballot.

IV. At the general meeting each share will have one ballot; the decisions to be made by a majority of the votes cast.

X. The general meeting of the Association will have to decide whether such members as have not subscribed for at least one share shall be admitted to the benefits of membership.

The capital subscribed at the time of the

TION WILL CONSIDER THE OFFERS OF MANU-FACTURERS.

1. The prices are to be understood to mean delivered at the nearest railroad station. In the offers made the cost of transportation to the nearest depot of the Association must be

sent prepaid.

3. All offers and samples will be carefully

considered by the proper committee of the Association.

The selection will take place in the follow-

are soon blackened, and, unfortunately, Rappe & Arndt, Dortmund.

We take from a paper by one of the members

Emery and sandpaper are products in which were compelled to give way to the American farm, liness of the rooms seems to induce product. We find that notwithstanding the liness of the rooms seems to induce cleanliness of person, and there is a fact that the American emery and sandpaper is greater self-respect among the workmen in 15 per cent, dearer than the best quality of the formula article, the durability of the formula article, are also article, and the durability of the formula article, are also are also are also are also are a health are by no means inconsiderable, mer is more than twice that of the latter, and scores of manufacturers that would willingly Comfortable places for washing and plenty for this reason it has double the value of the lend their aid to a sensible scheme of co-opera-

> "If the German manufacturer does not succoed in giving to his article a better durability, command the German market. What has been said in regard to emery and sandpaper can also than the German, but their durability is far

> all hardware dealers. These beautiful planes, crank braces, screw clamps, etc., which we see in a sample collection of American tools, are

their work, benefits capital as well as and more comfortable surroundings of his he had seen there, he said that if he were work- breadth, 38 feet; depth from hurricane deck, 31 employer, he curses his fate and feels that ing at the bench he undoubtedly would keep feet, and from main deck, 23 feet. At the "load class of master artisans.

essible to all. Could they do this we have no

augular; the upper part is smaller than the persenced captains and engineers, not identito slip out."

A New Co-operative Scheme.

A co-operative movement has been inaugurated in the West, with Pittsburgh as its headquarters, which will be watched with considerable interest. The object is to purchase a mineral property of 10,000 acres with the Laura Furnace thereon in Trigg county, Kentucky, if found to be the best site; if not, to report afternoon for the purpose of securing a con-against such property and find, through a committee of this association, some other more suitable property.

A company has been formed with the sounding title of "National Co-operative Mining, Manufacturing and Colonization Association." Among its officers are some of the best known "labor advocates" in the West. Isaac Cline, president of the Window Glass Association, is treasurer; Andrew Roy, the mine inspector of Ohio, is a director, and the other names are those of men who are both practical iron workers and seem to be well known among is to be \$100,000, in 2000 shares of \$50, payable \$5 cash, and \$2.50 per month until \$50 is vote, and no member to hold over four shares stock. Each member to have one town lot and five acres land, and interest in co-operative property, but members holding over one share only to have one lot and five acres, other shares to represent co-operative interest; members to receive profits in proportion to number of shares.

While there are some elements of success in this project there are more of failure. To begin with, they propose to undertake too much. For a co-operative society with \$100,000 basis, the successful running of a blast furnace would be sufficient to occupy their capital, especially if the product has to be carried for any time to avoid sacrificing. If the intention is to sell as rapidly as produced the project might as well be given up first as last in the

propose to limit themselves to no paltry \$100,000 capital. They will have power to increase. As the editor of a certain journalwhich proved by figures, which will not lie, character where the whitewash brush is lowing criticism on American goods, their qualused frequently and the walls kept white ity, and qualification for the German market: the whole United States—is one of the directors, it may be that this is the preliminary step about the place seems to be fresh and the American manufacturer excels. All others, toward such a purchase, and that the ultieven the old-established English A and B mate object of the association is Uncle Sam's

> tive labor and earnestly wish it success, because they know that the conditions of success are such that to achieve it the workmen must be the American emery and sandpaper will soon disabused of some of their notions about capital and labor, and especially of their relative importance. In successful co-operation gets control of its 10,000 acres they will have nothing to do with agrarian ideas. When they become capitalists to the extent of \$100,000 their

Our Iron Shipbuilding Interests.

On Saturday last Messrs. John Roach & Son aunched from their yard—the Delaware River he becomes a better workmen and a better their price is from two to five times those of Iron Shipbuilding and Engine Works-at citizen. Put a man in a dark, greasy, German make. Now, no one has any doubt Chester, Pa., an iron screw steamship, intended that the greater handiness, higher finish and for the New York and Havana trade. The better quality of the American tools make them owners are Messrs. James E. Ward & Co., of well worth the price demanded; but as the this city. The weather was as unfavorable as over heated and foul with impurities, and German master has to provide all the tools for it could well be for a spectacle, but in all eshis work men, he will only in exceptional cases sential respects the launch was entirely sucgo to the expense of providing them with cessful. The vessel was christened Niagara,

nothing but American tools; but to give them line" she will draw 16 feet 6 inches, and her into the hands of his workmen was too great Custom House register will be about 2400 tons. an outlay for him. This is not an isolated case, but it is the generally expressed opinion of the will be furnished with four cylindrical boilers, each 10 feet 6 inches long by 12 feet diameter, "We heartily sympathize with the effort which will supply steam at a working pressure American manufacturers are making to pre- of 80 lbs. per square inch to one pair of comvide the market with such excellent tools, but pound engines, the high pressure cylinder of we would recommend to them to lower the which is 34 inches, and the low pressure 60 price of their goods so as to make them ac- inches in diameter, with a piston stroke of 54 inches. The propeller (Hirsch pattern) is 15 doubt that their tools would soon command the continental market.

feet in diameter, with a pitch of 21 feet, and its maximum number of revolutions will be 75 per "We compared some time ago American ham- minute, giving a maximum speed when loaded mers and axes with the articles coming from of 14 knots per hour. A steam windlass and Westphalian foundries, and found in every in- steam hoisting machinery have been supplied, tance that the American goods were far better as well as everything in the lines of boats, rafts than the German in point of finish and excel- and pumps, and water-tight bulkheads (five), ence. In the latter case hardly any care was which can contribute to the safety of life and taken to give the hole through which the han- the security of a ship at sea. As she was towed dle passes any fluish. It is left rough and to the dock, after leaving the ways, several exlower, and a frequent slipping out of the han- fied with Mr. Roach's interests, pronounced Since then we have received a summary of their dle is inevitable. The American article has a her the "most perfect steamship yet built in any smooth, well finished hole, provided with two country for the trade between the tropics and side plates, which pass over the handle and the temperate zone." In sixteen days the Saramake it almost an impossibility for the latter toga, an exactly similar steamer, for the same owners and trade, will be launched from the same yard, and will enter service July 10 prox., as the Niagara will enter it June 5. Both vessels are rated A I for seventeen years by the Bureau Veritas and the American Lloyds.

In view of the economical results obtained in American iron steamship building since the launch of the City of Peking (March 18, 1874), a representative of The Iron Age called on Mr. Roach at the Morgan Iron Works on Monday during the past three years. Mr. Roach said that the subject was much too vast to be prop-crly treated within the few moments he could then devote to it, but he would prepare such summary at his earliest convenience. His attention was then invited to the fact, well known to him, that the ability of our shipbuilders to construct, ultimately, a mercantile fleet to correspond with that of the British at present, depends on our ability to build it as well and as cheaply as the British do; and then, to the speaker's belief, that, if he would tell the workmen of the West. The capital stock exactly what it cost to build the Niagara and deliver her in New York, as the latest product of his shipyard, he would materially assist in paid; each member to be entitled to only one solving the problem of our competition in iron steamship building with Great Britain. He replied with decided emphasis and manifest sincerity that, so far as he was personally concerned, he would rather publish the cost than not, but he thought that to do so would be to make an unfair exposition of his customers' business with him. He added, owever, that if he were to show his books relating to the cost of the Niagara, he doubted whether any British or American builder would believe she could possibly be constructed for so little money. When asked about his profits on ber, Mr. Roach candidly answered that they were small, but that he was not so much ambitious to make large profits as to show what could be done in his business in our country at a present small profit. When questioned regarding free trade in ships, Mr. Roach answered in these words: "When our people shall adopt a general free trade policy in all respects (if they ever do), I shall be willing to have fron shipbuilding take its chances with all our other industries; but I think it would be unjust to ask our shipbuilding to stand free trade alone, with all our other industries proteeted." He believes, also, that as foreign steamships become worn out there is a good chance that many of them will be replaced from American yards. He has now six commercial steamships on the stocks at Chester, and employs 2300 men there.

> Water Pipe Contract for Cincinnati. -On Thursday, April 26th, proposals were received by the authorities of Cincinnati for a year's supply of water pipes, estimated at from 15,000 to 20,000 tons. The following were received:

E. P. Allis & Co., Milwaukee, Wis... \$31.00 per ton. H. R. Smith & Co., Columbus Ohio... \$2.00 **
Shiekle, Harrison & Co., St. Loue, Mo. 36.00 **
Wm. Smith & Sens, Pittsburgh, Pa... 31.60 **
Dennis Long & Co., Louisville, Ky... 31.60 **
R. D. Wood & Co., Philadelphia, Pa... 32.00 **

The Board of Public Works awarded the contract to Dennis Long & Co., and the City Council, on the 28th, confirmed same.

Celluloid,-Mr. John J. Berne, of Chicago who is making intelligent study and observation of fire origins and fire liabilities, writes to us concerning two cases of actual or probable celluloid combustion, viz. : During a game of pool one of the balls dropped off the table, and coming in contact with a lighted cigar stump on the floor, the ball instantly caught fire and blazed, with a slightly sputtering noise, until its outside coating was consumed. Examination of the ball, after the fire, showed it to be made of a solid globe of compressed cotton, covered with white composition about one-eight inch thick; this composition, resembling ivory, was probably celluloid, but whether this is so or not, it is certain the incendiary composition is extensively used in manufacturing the cheaper quality of billiard and pool balls. Subsequently, during a game of pool, in another saloon, a player holding a lighted cigar in his hand, picked up a ball which, coming in contact with the cigar, instantly blazed with the same hissing noise as before described; the barkeeper had sufficient presence of mind to throw his coat over the villainous compound, and succeeded in preventing further damage than the burning of the outer coating of the ball and severely scorehing his fingers. The Germania American tools. We spoke not long ago with and is the twenty-seventh constructed at this of New Orleans had the risk, and pays \$2.50 for

Co-operation in Vermont.

The Co operative Association experiment, at Springfield, Vermont, has been watched with much interest, and its misfortunes and success have been the subject of considerable comment Recently the Association have been making preparations for an enlargment of their numbers, and advertised for men and women to join

Previous to the foundation of the society. Mr. Joel A. H. Ellis, who had been superin tendent of a toy factory, lost his position through the destruction of the factory by a rise of the river, and then he took the initiative to ward founding a co-operative factory. He and four sympathizers, with a capital of about \$1000, hired a small shop with water-power and began to make toys. Sales were readily effeeted, and new members were admitted on payment of \$100 each. In April, 1875, just as the society had entered upon the bigh road of success, its factory was burned. Several members retired in discouragement, but those who remained built a new shop, and two months thereafter were again on their feet. In May last, being about fifty in number, they had two shops, and their property was estimated at \$15,000. They also leased two houses, which all but four of the members lived.

Every male candidate was at that time required to pay at least \$300 into the general fund, on which he was guaranteed interest at the rate of eight per cent. He was taken on probation for three months, and paid wages only elightly in excess of his expenses. If at the expiration of that period he desires to withdraw, or if the members objected to his reception, his money was returned with interest. If received, he was employed at from \$8 to \$16 a week, according to efficiency, payable at the end of every three months, after one-fourth of the aggregate had been deducted and invested in stock bearing eight per cent. interest. This was returnable in cash, should the recipient sever his connection with the Association either by his own will or by that of the com pany. Board and lodging were also deducted at the rate of \$4 a week, with the understanding that any profit accruing from the boarding. bouse should belong to the general fund of the society. Should business prove dull, the society would still pay eight per cent. interest on the stock, reducing wages, if necessary, to attain that end. Boys were not requested to pay more than \$100 in joining, and women only paid \$25. Neither was it required that they should pay the money at once. It was de ducted from their wages. In other respects, the rules governing both sexes were the same except that women were charged only \$3 for board, and had only 15 per cent. deducted from their wages toward stock. They carned from \$5 to \$7 a week. New members were required to be of good moral character, in good physical condition, and steady workers. Total absti-nence from liquor and tobacco was enjoined, and amiability was another requisite.

Of the gentler members of the society fully one-half had been school teachers, and were intelligent and cultivated. They much preferred the light labor of the shops and the pleasant society around them to the drudgery of teaching country schools, especially as the former was coustant and enabled them to save money, and the latter necessitated six months of idleness every year. Several of the men had also been school teachers, but the majority were mechanics, variously skilled, who joined the Association with a tolerable certainty of escaping enforced idleness when trade was dull, and of being much better off at the end of the year than in the beginning.

Probationers were closely watched, and their conversation was much sought, with a view of learning their temper and views. If either idleness or a taste for liquor or tobacco tainted the probationer, many eyes were ready to note the fact, and at the end of the term the votes went against the new comer. The same result would accrue if the individual were found, through ignorance or want of polish, to be not the person wanted. Both sexes voted. Statements of accounts were regularly rendered at the businers meetings, and the directors regulated the wages for the ensuing period accordingly. Should an operative not work the prescribed number of hours, from 7 a. m. to 6 p. m., less the dinner hour, deductions were made from his wages in proportion to the time lost. The souls of all seemed to be in their occupation. It was their play. Men did the rougher work at the engines and women had the lighter

Mr. Ellis, the superintendent, says that there is no reason why men should stand idle and suffer, while their labor will produce food, clothes, shelter, and all else to make them com

Silver-Plating Before the Days of Electro-Metallurgy.

The art of covering baser metals with a thin plate of silver, either for use or ornament, is said to have been invented by a spur maker. Till then the more elegant spurs in common use were made of solid silver, and from the flexibility of that metal they were liable to be bent into inconvenient forms by the slightest accident. To remedy this defect a workmen at Birmingham contrived to make the branches of a pair of spurs hollow, and to fill that hollow with a slender rod of steel. Finding this a great improvement, and desirous to add cheapness to utility, he contrived to make the hollow larger, and of course the iron thicker, till at last he so coated the iron spur with silver as to make it look equally elegant as these made wholly of that metal. The invention was quickly applied to other purposes.

Little more than a hundred years ago, an in-

Manufacturers of

IMPROVED Gimlet Pointed Wood Screws, Patented

1876.



After forty years' experience we offer to the trade our Centennial Screw, pat-

ented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machinery as fast as possible, to manufacture the improved article only. To introduce them, they will be sold at same price as the old style screw.

The new sciews will be packed in manifactored boxes with new label covering end of box, and enlarged figures showing plainly contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us.

Section at Line A Section at Line C D Section at Line C. D. Section at Line E F Section at Line E

The above drawings show the progress of ser w making from the old blunt point to style now adopted. Experience has shown that the weak point of screws, as formerly made, is at the

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

heel of the thread, where all the strains of forcing the screw into the

It will be seen in our **new screw** that not only is the sharp angle avoided, but the strength very much increased, as illustrated above. See sections at lines.

CLAIM.

"A Pointed Wood Screw naving the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without jogs in the paths between the threads, substantially as described."

genious mechanic named Thomas Bolsover, while employed in Sheffield in repairing the handle of a knife, composed partly of silver and partly of copper, was, by the accidental fusion of the two metals, struck by the possibility of uniting them so as to form a cheap substance, which should present only an exterior of silver, and which might, therefore, be used in the manufacture of various articles in which silver had before been wholly employed. He subsequently began a manufacture of articles made of copper, plated with silver, but confined himself to buttons, souff boxes, and other light and small articles. Like many other inventors, he probably did not see the full value of his discovery, and it was reserved for another member of the Corporation of Cutlers of Shef-field to show for what other uses copper, plated with silver, might be employed, and how successfully it was possible to imitate the finest and most richly embossed plate. He employed It in the manufacture of waiters, urns, teapots, candlesticks, and most of the old decorations of the sideboard, which previous to his time had been made of wrought silver. The importance of the discovery now began to be fully understood; various companies were formed; the streams in the neighborhood furnished a powerful agent for rolling out the metal in mills crected for the purpose, and workmen were easily procured from among the ingenious mechanics of Sheffield, who, in a few years, aided by proper instruction, soon equaled in the elegance of their designs and the splendor of their ornaments the most costly articles of

One of the old ways of plating inferior ctals, employed by the best workmen, was as follows: The article, after being filed and smoothed, was wrapped all over with a fillet of sheet silver, which was fastened with small wires, after which, borax, ground with water, was laid upon the surface and sprinkled with silver solder; it was then heated red hot, so as to braze the silver to the article, after which the surface was filed smooth, burnished, and otherwise got up as silver. A more common way was described as follows: The piece is filed all over the surface, so as to be perfectly clean and bright; it is then tinned in the usual manner, by dipping it into a vessel of melted tin, and wiped over with hurds, so that not more than a very slight coating may remain. A foil of silver, beaten very thin, is then cut of the size of the article, and folded upon it as perfectly and closely as possible. In the flat parts it is beaten close with a small hammer. and covered with cloth, while upon the moldings and in the hollows the foil is rubbed down with a sort of burnisher. When the silver film has been properly closed upon the article in every part, so as to adhere to it, as it will do from contact, a soldering bit, very similar to that used by tin plate workers, is passed over every part of the surface, by which operation the tin and silver are united, and the pellicle of precious metal adheres to the body of the article with considerable tenacity. To make the attachment still more perfect, the surface is sprinkled with powdered resin, and heated, the article being frequently withdrawn, and dipped into the powdered resin, in order to flux the tin. The polishing is then effected by means of buffs of buckskin and rottenstone.

Solid Water.

Prof. Guthrie, F. R. S., gave a lecture recently at the Royal Institution on "Solid Water." He began with the remark that those things which are in their nature most abundant are, in fact, the most exceptional. After a few other illustrations he pointed out that water, which is so very common, is unusual, and shows egregiousness in its properties. Cast radiant heat on it, it arrests that heat; apply heat and it not only conducts it, but is pre-emicent among compound elements as a conductor. Drops of water are the largest of drops of any fluids, and hold together longest. It reflects light least. Water may be solid from the abstraction of heat, and in association with other bodies it may become solid. In the latter case it is only conventionally called solid, and it might be better to call it fixed. It was especially the "fixing" of water in compounds of water and salts that formed the subject of the lecture. About two years ago Prof. Guthrie proposed the term cryohydrates for the hydrates of those crystalline bodies which can exist solid only at a temperature below the freezing point of water. The study of the cryohydrates opens up a wide field of research of which we are but yet on the threshold. A num ber of experiments were shown, and tables of results so far obtained in working with different compounds were exhibited. The actual production of the cryohydrates of bichromate of potash and sulphate of copper was shown on a small scale between sheets of glass in front of a lantern, the gradual growth being watched on the screen on which the images were projected. We can hardly yet tell to what practical uses these studies may lead, but this is already seen, that while the cryohydrate of common salts used as a freezing mixture maintains a temperature of 23° C., there are other cryohydrates that maintain a lower tempera ture. Speaking of the palæocrystic sea, Prof. Guthrie said he ventured to predict the proportions of the salts there will be found different from what they are in other oceans. One fact not accounted for before that these studies have explained, is that at 37° C. a mixture of four molecules of water and one of alcohol become solid, but that a mixture either stronger or weaker will not solidify. This explains why the rum of some whaling ships will freeze, and of others it will not. It depends on its strength. In conclusion, Prof. Guthrie spoke of the importance of a careful study of the effects caused by slight differences even in common ob-

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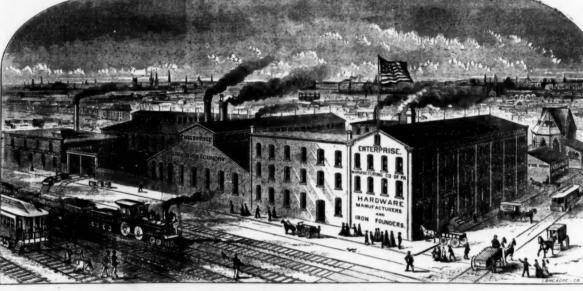
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Sausage Stuffer, Fruit, Lard and Jelly Press combined, (Open.)

Inventions of the Century

We give below an abstract of the first lecture in Prof. Pliny E. Chase's course on "Lessons of the Centennial," lately delivered before the Franklin Institute

You will not expect me to rehearse in three lectures any considerable portion of the lessons which could be learned by six months' study of the great Exhibition ; but you may, perhaps, be interested in briefly reviewing a few of its most obvious teachings. I will ask you to go back, in imagination, to the "good old times" of our grandfathers and greatgrandfathers; to the generation which rejoiced in the enterprise of Franklin, who, as Deputy Postmaster General, had established a fast mail line, enabling a merchant or a stock broker, or a lover in Philadelphia, to send a letter to New York and get an answer in a week. There were no friction matches then. Man, as a cook ing animal, had so far advanced from savagery as to substitute the flirst and steel and tinderbox for the friction of two pieces of dry wood, as a means of procuring the fire that he needed. Matches, dipped in sulphur, served to start a flame from the tinder spark.

The German chemist, Dobereiner, found that platinum sponge occludes or shuts up many times its own volume of bydrogen. The rapid vibration of the gaseous particles being thus greatly concentrated, the frequent collisions raise the platinum to a glowing heat, which inflames the gas that surrounds or plays upon it. This discovery led to the invention of his chemical lamp, which is still an interesting toy for the laboratory or study, but not fitted for general use. It furnished, however, an admirable illustration of the great principle of vibration, to which modern research points as the probable origin of all forms of force and motion.

The first chemical matches were often sold at from 6 to 10 cents apiece. They were tipped with a mixture of chlorate of potash and sugar. or some other substance rich in carbon, and accompanied by a vial of sulphuric acid. When the match was dipped into the acid it took fire. Amorphous phosphorus was afterward substituted for the acid, thus furnishing substantially the same combination that is used in the modern safety match. In 1929, John Walker, a chemist of Stockton-upon-Tees, dispensed with the bottle by including phosphorus in the mixture for the tips, and igniting the match by the friction of sand paper. This was the "lucifer" match, which interested Faraday so much that he sought to confer a great public benefit by promoting its introduction into gen-The various forms of friction match, with which we are all familiar, are merely modifications of Walker's lucifer. Coston's telegraphic night signals, which were in the Centennial Exhibition, are fired on the same prin

A century ago the oil lamp and the tallow dip, the latter being by far the more common of the two, helped to make the darkness visible. In 1786 the Scotch lord, Dundonald, distilled coal and constructed an apparatus, merely as a curiosity, for burning the escaping gas. His canny workmen used the waste gas for light. In 1792, Murdoch began his attempts to introduce gas for lighting factories, but for several years his efforts met with little success. Westminster Bridge was first lighted with gas in 1813, and the neighboring streets in 1814.

In 1790 there were but 25 post offices in the United States. Even so lately as in 1836 the postage on a single half ounce letter was 25 cents for 400 miles or over. Electricity was not impressed into the postal service, by Prof. Morse, until 1843. Prof. Henry's discoveries. which rendered practical telegraphy possible, began in 1830. The first efficient submarine link in Puck's "girdle round the earth," was laid the design being limited by the number of in 1851, between Dover and Calais; the first treadles that one man could work. "Draw-Atlantic cable in 1858. Now, through the boys" were vext introduced, who operated judicious study of the effects of combined and superposed vibrations, we have the duplex of the loom; but the constrained position that and quadruplex telegraph, and the telephones they were obliged to keep ruined their health of Gray and Bell. There is good reason to believe that the telephones may be so perfected as to enable us, without limit of distance, to send an indefinite number of messages, at the same time and in opposite directions, over a single wire. Already conversation has been holes so arranged as to allow the passage, at carried on through a wire of over one hundred the proper moments, of wires connected with and fifty miles, so that the words were dis- the warp threads. The Lyons silk manufacturtipetly audible, and the voices of different ers wove a portrait of Jacquard in his workspeakers were readily recognized. Music has shop, which required 24,000 cards, each card been transmitted from Chicago to Detroit, a distance of two hundred and eighty-four miles, the notes being as clear and distinct at the end as at the beginning of their telegraphic journey.

The granaries of the world are largely supplied by the crops of our teeming Western prairies. The "ttaff of life" is cheapened by the improved drills, plows, cultivators, mowers, reapers and threshers, which enable our farmers to cultivate their immense fields and gather their bounteous barvests. The wooden plow, in the Tunisian department of umphs of human skill and creative genius. the Exhibition, was nearly as efficient as the one which was used by our great-grandfathers; the present "header," for gathering clover shall be clean, and that their colors shall be seed, contains the only contrivance which they "fast." Both of these ends are secured by the knew for rapid reaping. The headeris, substantially, the same as the machine which was used specimens on the table. You see that it is a that time. For iron from one-quarter to oneby the Gauls, in the first century of the Christian ers, having a comb in front to strip off the ears of and that it looks very much like bottle glass. wheat, and pushed by an ox. It received no It is at once a glass and a salt and a

aprons and homesput dresses. The hand-loom ing a soapy solution, which may be used for was a familiar household implement; the set- washing, for taking the place of resin in comting of hand cards enabled farmers' children to mon soap, for forming artificial stone, for fireearn many an honest penny during the long, proofing garments or scenery, for a mordant in but cheerful, winter evenings that they spent fixing dyes, for lining coal oil barrels to prein the chimney corner. Hargreaves patented | vent leakage, and for various other purposes.

do by manual labor, were not sustained until 1785. It would require 40,000,000 laborers to do the spinning which is now done in England by machinery alone.

Samuel Slater who was apprenticed at the age of 14 to Jededish Strutt. Arkwright's partner, made such improvements that he was entrusted, before he became of age, with the supervision of a new mill and the construction of its machinery. Almy & Brown were then about erecting a factory at Pawtucket, in which they offered Slater an interest. He accepted the offer, but the rigid British laws, against the emigration of artisans, prevented his taking any machinery or drawings with him. But his capacious head held all that he needed, and in 1790 he started the first successful cotton mill in the United States.

While constructing his machinery, Slater wished to obtain twilled cards of a pattern that had never been made in America. Pliny Earle, who agreed to make them, used two needles inserted in a bit of wood, to prick the holes in the leather into which the carding teeth were to be set. The tediousness of the operation led him to the invention of a machine which is still in use, and which, while it performed the work more satisfactorily, saved the labor of 60

In order to prepare the cotton for carding, it was necessary to separate the fiber from the seed, a tedious process, especially with green seed cotton, which was the best variety. The cleaning of a single pound was considered a good day's work for a negro. This labor, added to the costs of cultivation, transportation, manufacture, reshipment, commissions and mercantile profits, made even the coarsest cotton goods expensive. Whitney's cotton gin, which was completed in 1793, raised the value of the cotton plantatious from 50 to 100 per cent. Judge Johnson said: "If we should assert that the benefits of this invention exceed \$100,000,000, we can prove the assertion by correct calculation." All the emolument Whitney received for this immense benefaction was \$50,000 from the State of South Carolina, a tax of two shillings and sixpence levied for five years upon every saw used in North Carolina for ginning cotton, less the collection expenses, and some promises, which were never fulfilled, from other states. A large portion of the money which was thus obtained the inventor was obliged to spend in vexatious lawsuits.

The increasing demand for machine cards, consequent on the reductions in the cost of cotton goods, stimulated mechanical ingenuity to devise means for their more rapid production. Eleazar Smith invented a machine which would pierce the leather, cut the wire, bend it into proper shape, or both bend and set it, provided the tooth was straight. But in order to furnish the requisite resistance in the carding process, it was necessary that the tooth should be so bent as to form a knee; and after numerous vain attempts to set a bent tooth, Smith abandoned his undertaking. Amos Whittemore bad been experimenting in the same direction, and hearing of Smith's machine, he asked if he would sell it. A price being soon agreed upon, Whittemore took his purchase home, and the thought is said to have come to him, in a dream, that it would be just as well to bend the tooth after it was set, as to set it after it was bent. He accordingly added a simple bending die, took out a patent, and sold the right for \$150,000. It was afterward repurchased by his brother Samuel.

The rapid increase in the production of plain fabrics, consequent upon these inventions, was accompanied by improvements no less wonder ful in the weaving of ornamental designs. The warp threads were at first moved by treadles, design cords which were fastened to the side in a few years. Vaucanson introduced tambour machines, which were subsequently improved and finally perfected by Joseph Marie Jacquard, who reduced the roller to eight sides, which carried an endless chain of cards, pierced with being large enough to receive 1000 holes.

William H. Horstmann first introduced th Jacquard loom in America in 1824. In 1837-8. his son, William J. Horstmann, manufactured power looms of his own designing, and em ployed them for weaving narrow textile fabrics The complication, delicacy and accuracy with which the mechanical fingers and scissors and pliers of the card setting and ornamental weaving machines do their appointed work, entitle them to rank among the most wonderful tri-

In order that the products of the loom may find a ready market, it is desirable that they use of a very cheap soap, of which there are very hard soap when in its most compact form, Our great-grandfathers rejoiced in leather which can be dissolved in boiling water, form-

achite to do as much work as 130 men could factory where wool hat bodies are made, re- tougs. The trimmer has only to push the car-

quires animal wool or hair. You may learn working a bair lengthwise through your fingers.

You can readily move it in one direction but not in the other. This is due to little protuberances on the surface of each hair, all pointing protuberances gives considerable strength to cutters trim it in a few seconds to a perfect prise be carried out, the present satisfactory the bocking or other felted product.

Paper is a sort of felt, but the adhesion of its fibers is mainly due to a kind of paste. The "mammoth ream," with meterial sufficient for 500,000 sheets of note paper, and the general American display of paper, in all the principle styles of manufacture, attracted great attention from the foreign visitors to the Exhibition. The parchment papers, suited for bookbinding; the paper imitations of silk and leather, for hangings and other purposes; the great variety of applications of papier-mache and carton pierre, the "matrix" for stereotyp ing any required number of duplicate forms to be used in printing newspapers, represent only a few of the late inventions in this single line of manufacturing industries. By means of the continuous rolls, the cutters, the cylinders, the flexible matrices, and the webs, the clumsy and tedious processes of 40 years ago have given place to fast presses that are capable of print ng a mile of newspapers per minute, throwing off the printed and folded sheets as fast as two active boys can carry them away.

Those of you who have read Gulliver's travdeavors to extract sunbeams from cucumbers. Can you imagine any idea more absurd? Can you not picture to yourselves the smile of satisfaction that lighted Swift's face, as he penned the keen sarcasm on the philosophical speculations of his day? Yet in science, as in religion, we may often apply the maxim, credo quia impossibile est-its very impossibility makes it credible. The Laputan dream has been literally fulfilled, for if you gather a cucumber that has been exposed to the strong sunlight, take it into a dark room, wrap it in paper that has been pre pared for photography, and shield it in all possible ways from external light, the delicate vibrations which have been absorbed will again be given forth, imprinting a distinct image of the cucumber on its sensitive wrapper. In connection with this fact it may be well to remind you that, although Davy and Niepce had developed camera pictures, and Daguerre had made them permanent, the limning sun took its first portraits in America.

Such are a few of the inventions which have contributed to the marvelous physical progress of the past century. From the many others I will select but one-the one which is, in many respects, the most important of all-the steam Hero, of Alexandria, invented the seolipile, which remained for ages an unsuggestive toy; the Marquis of Worcester described forms of apparatus by which steam could be applied to useful work; Savary, Newcomen and Crawley made pumping engines for the drainage of wells and mines; but it was left for the ingenuity of Watt, by a series of improvements which were completed in the year of our national birth, to give us that mighty instrument of unwearying and unlimited toil which has wrought a revolution in our homes, in our workshops, on our farms, on our highways, in the bowels of the earth, and on the face of the mighty deep. Steam was first applied to cotton machinery by Arkwright, in 1785; to sawing stone and grinding plaster, by Oliver Evans, in Philadelphia, about the same time; to a boat on the Forth and Clyde canal, by Symington, in 1802; to river navigation, by Fitch, Stevens, Evans and Fulton, between 1804 and 1807; to a road engine er locomotive, in 1805. Stephenson's "Rocket" first drew a train of cars at the opening of th Liverpool and Manchester Railway, in 1829.

The first century of this mighty monarch's sway has ended, and through its instrumental ity the capacities of mechanical industry have been increased more than tenfold. Machinery is now doing more work than the whole population of the globe. The beautiful engine in Machinery Hall, which accomplished, so easily and so quietly, a task such as had never before been witnessed, may therefore be fitly remem bered as the center of our Exhibition, which worthily and suggestively exemplified "the inventions of the century."

The !ecture was copiously illustrated by experlments, specimens of materials and fabrics, and lantern pictures.

Rotary Shears.

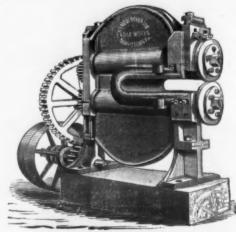
We illustrate upon this page a pair of rotary shears for cutting and trimming Iron and other metal plates, made by R. S. Newbold & Son, of Norristown, Pa. The machine works with both rapidity and accuracy. The cutters are 12 inches in diameter, which, of course, gives a cut of 8 feet at each revolution, and when working sheet or flue iron not over one-quarter of an inch thick, the speed is from 40 to 50 revolutions per minute, which is equivalent to from 120 to 150 feet of well trimmed iron in half inch thick 30 to 35 revolutions per minute is a better speed, and when it is desired, the gear wheels are so arranged, by having two reciprocating knife, in 1822. McCormick's glass. If it is allowed to run from the furnace into water, it crumbles into a coarse powder frame and used for driving the shears.

The operation of the machine is very simple In front of the cutters is placed a cast from tramway planed true, and on this travels a wrought fron carriage with turned wheels and flanges, and the sheet to be trimmed is placed upon the carriage, the front end going under bls spinning jenny in 1770; Arkwright's contested patents, which enabled one man with a true felting process, which you can see in any being firmly held to the carriage with a pair of the bei

For circular work a clamp frame is made which can be readily put on or taken off, as the case may be. This clamp has two adjustable cenin one direction, and the interlocking of those ters for holding the plate securely while the

riage forward until the plateenters the cutters, land to stop the massacre of sailors and destrucwhy the animal fibers tend to cling together, by when the latter draw it through as fast as a tion of property through the improper bandling working a bair lengthwise through your fingers. man will walk at a brisk gait,

> It is proposed to lay a pipe line from the oil regions to New York city. Should this enter-



compressed between the cutters and the gauge, is cut perfectly uniform.

These shears were on exhibition at the Centennial, and received an award for the satisfac tory character of the design and the excellence of their mechanical execution. There are a large number of these shears in the different mills throughout the country, all giving satisfaction, we believe. Among them are Messrs. A. Wood & Co., of Conshobocken, Pa. (3 in use); Mesers. Oliver & Co., of Easton, Pa.; Catasan qua Mfg. Co., Catasauqua, Pa.: Paxton Rolling Mills, Harrisburg, Pa.; Horace A. Beale & Co., Parkesburg, Pa.; Graff, Bennet & Co. (2 in use); Spang, Chalfant & Co., and Lewis Dalzell & Co., all of Pittsburgh. The last named firm are particularly pleased, and say they have much reduced the expense of trimming. We also note the fact that a pair have been sent to Ernst Stridsberg, of Thorshalla, Sweden.

A specter haunts a considerable portion of the men engaged in British commerce in the form of the danger of spontaneous combustion of coal in ships, consequent upon a proper lack of ventilation. The number of coal-laden vessels which are missing is becoming very great. The worst of it is that the ships blow up at sea and founder, and no one is left to tell the tale. There is a chance for another Plimsoll in Eng-

circle with smooth edges. For slitting skelp | position of the metropolis in the oil trade els, will remember that the philosophers of tron an adjustable gauge is put in the throat of Laputa were represented as engaged in enhas been expecting to get this line, and will fight its construction to this port. Other induences will contest it, but it is believed now that the pipe will be laid. It will cost \$5000 a mile.





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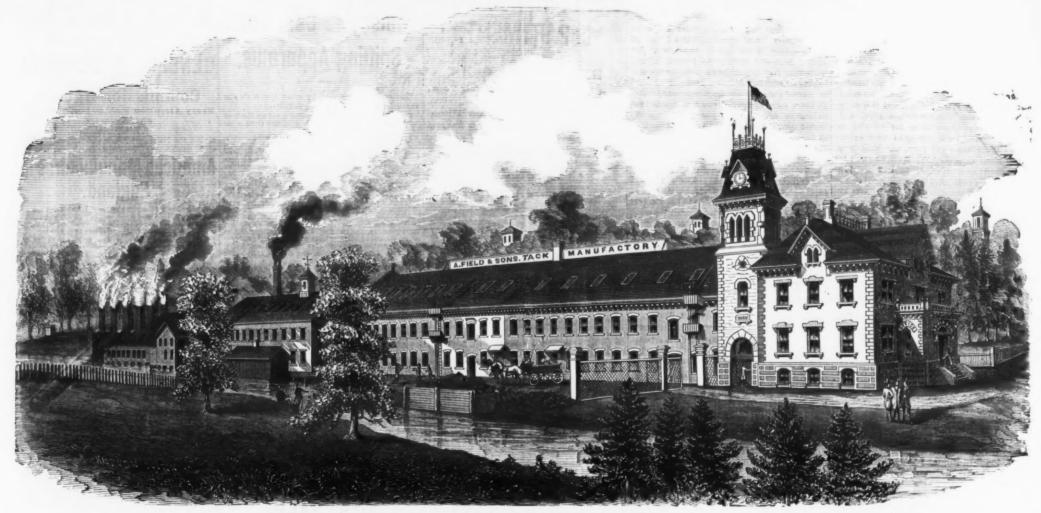
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Steel-Headed Rails

Herr Adolph Grau, who has manufactured them since the autumn of 1868 at the Maximilian Works, at Haidhof, has invented a process by which he claims he can make a good steelof the former; this arrangement was, however, discontinued in 1871, it being found that in the process of rolling these protection plates were tear of traffic separated from, and were stripped off the steel portion. Rails which were rolled from this form of pile in 1869 and 1870 failed to the extent of 1 to 2 per cent. of the whole production.

It is said that in 1871, however, there were year the rails have been totally exempt from Even where failure occurred the separation of the steel from the iron proceeded so gradually as to render the withdrawal of the rails unnecessary until six months after the first signs of weakness had appeared.

The London Mining Journal has the following in regard to the wear of these rails : Rails manufactured in 1871 were, however, subject to another form of failure, which first presented itself in the shape of dark-colored streaks, extending from the rall end along the head, developing into cracks of from 3 to 61% feet in length, followed by partial breaking up of the surface. This was attributed to the unanitable quality of the steel, and might possibly have been avoided by more careful conversion and testing. There were, however, few absolute ruptures; only nine were reported, and in each case they took place at the fish-bolt holes, which were of rather large dimensions. The form of the steel-head plate was modified in 1871, it being rolled with a projection on the under surface to insure a better combination with the fron portion of the rail; this form has since been adhered to.

We may now advantageously give a few de tails as to the practical results which have attended the adoption of the steel-headed rails, of which Herr Grau is an advocate. upon sundry Bavarian railways upon which they have been laid down. Between 1869 and 1878, inclusive, 14,716 tons of steel headed rails were laid upon the Bayarian State lines and of these rails 124 tons failed in 1869; 61 tons in 1870; 141 tons in 1871; 1 ton in 1872, and nil in 1873, or 327 tons in all. The percentage of failures to the whole quantity of rails laid down during the five years was thus 2.23 per cent. If we exclude 1869 from the analysis, and deal only with 1870, 1871 and 1873, there will remain 13,324 tons delivered, while the proportion of failures will be found to be only 203 or 1.50 per cent. of the whole deliveries. Some similar steel-headed rails were also laid in 1869 upon the East Bayarian Railway at places where the gradients are 1 in 100, and the curves of 141/2 chains to 26 chains radius. In 1869 the percentage of renewals was 0.60; in 1870, nil; in 1871, 2.65; and in 1872, nil. Among the causes of failure there were only three cases of rupture-two through the fish-bolt holes, and one at a distance of three feet from the rail end, the remaining defects comprising longitudinal split ting, &c. The steel-headed rails made for the Bavarian State railways weighed, it should be added, 75% pounds per yard, and they were rolled in lengths of 1934 feet and 2014 feet. Where failures occurred they took place gener ally upon those parts of the system where blocks were in use; where sleepers were laid the rail renewals which had to be made were inconsiderable. Upon a section of single line between Cologne and Vienna, where there is a daily traffic of 144 engines and trains, steelheaded rails were laid in 1871, 1872, and 1873 at the most trying places-upon gradients of 1 in 100. In all 3980 steel-headed rails were thus laid down during the three years, and no re newals had to be made.

The Effect of a Tariff.

During the discussion of international trea ties before the Associated Chambers of Commerce of Great Britain, Mr. E. M. Boynton, of made by the New York Steam Engine Co., for sale this city, representative of the New York Board of Trade, bad a lively just with a member of Parliament who ventured to criticise somewhat sharply the American tariff policy. Mr. Boynton reminded the gentleman that the United States had not been depressed by its tariff, unless doubling the accumulations of the United States in the five years succeeding the close of the war in 1865 meant depression. He had before alluded to the war loss of seven billions. nearly half the wealth of the United States, by census of 1860, yet 1870 showed a rating of onethird of a hundred billions. When did any country so quickly recover? The loss of one million brave young men, who died for freedom and their flag in our fratricidal strife, the wounding of an equal number, the diversion of one and a half million producers to the battle, and the siege during the first five years, would ruin any other nation. Yet, so far from bankruptcy ensuing, the succeeding seven years are unexampled in the material progress of his country. Their railroads doubled reaching at present 78,000 miles! Their mills doubled! Their mining doubled! Poverty The distinguished gentlemen should stand at Lake Superior, and see the thousands lifting that matchless ore from the very surface of the mountain, that could supply the world for ages. Instead of a single cargo in 1861, new 800,000 tons of ore are shipped annually from that remote point of Michigan. Missouri, Pennsylvania, Ohio, and Southern States, showed immense progress, and to smelt iron and manufacture goods they had more coal than all the rest of the world in America. The

seventy had failed, but not from protection. for in specie-paying Canada, under England's own scopter, instead of the frightful failure of one in seventy, it was one in thirty two. Are headed rail. In the manufacture at first bars United States' securities the lowest in your were placed on each side of the steel-head markets? Lower than South America and Euplate with the view of preventing the burning ropean countries? He was annoyed by that accidental statement-" most depressed." You all know they are the favorite investment next to English consols-that our credit is justly generally extended too far up the sides of the higher than the armed and overloaded nations rail-head, and when subjected to the wear and of Europe. We have peace, are free from your Eastern complications. We have prosperity founded on the industry, enterprise, and above all, the intelligence of our people backed up by our boundless resources. The castle and garden wall of protection might be lowered as we advanced our manufactures to the markets only a few instances of failure, and since that of the world, but the failure of protection must be founded on other theories then lack of progress in wealth and credit. For nine hundred ress in wealth and credit. For nine hundred and fifty years you were resolute protectionists, till you wou the market and carrying trade of the world. We have shown you our first Centennial, and are advancing toward your position quite as fast as you will have reason to desire. We expect to lead in one-fifth the time it has taken you. The United States having doubled its manufactures and mining, in defiance of war and panic, they, in the last decade, had justly won credit above other nations.

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V. Map of the Black Sea, with part of Southern Russis, the Cancasus, Northern Asia Minor, Eastern Turkey and Roumania. Price, folded and in cover, 30c. All these Maps are carefully compiled from the latest material. They are geographically correct, and have the railroad lines, etc., distinctly indicated. They afford a reliable representation of the scene of the present Eastern complications, and will enable the interested observer the better to under-stand the situation of affairs, while proving, also, a safe guide in following the future course of events

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PHILADELPHIA, April 2, 1877. On and after April 30th the Shipping Agency of The Pennsylvania Warehousing and Safe Deposit Co., at Perth Amboy, New Jersey, will be discontinued.

B. K. JAMISON, Vice President.

Parties Having Room and Power Favorably Located,

business in the Hardware line, are requested to ad dress, for particulars,

P. O. Box 451, Athol, Mass.

Palmer, La Grange & Duval, SHAWNEE, OHIO. Furnace Builders & Mining Engineers,

will contract for the construction of Furnaces complete and in blast, or furnish drafts, specifications and give general instructions. Will put in toves and machinery of any description that may be required. Information for furnace locations can be obtained at our office in Shawnee, on application

JOS. PALMER. H. LA GRANGE. B. F. DUVAL. DROP FORGINGS.

The TRENTON VISE & TOOL WORKS, Trenton, N. J., having increased their facilities, are now able to do all kinds of Iron and Steel Drop Forgings

n quantities to order at reasonable rates. HERMANN BOKER & CO., Proprietors, 101 & 103 Duane St., N. Y

Important to Manutacturers. BISSELL, WELLES & MILLET,

Auctioneers and Commission Merchants, No. Selicit from Manufacturers and others consignments of Hardware and Cutlery for our weekly Auction Sales to the Trade, or at private sale for cash, as desired. Our facilities for moving large lines of goods are unsurpassed. Advanges made if desired.

HARDWARE. — An energetic and competent Clerk, who has 12 years' experience in the Hardware business, desires a permanent situation. Unexceptional references. Address S. R., Office of The Iron Age, 83 Reade St., N. Y.

Special Notices.

Klein, Butschke & Co., No. 179 Pitt Street, Sydney, AUSTRALIA.

GENERAL MERCHANTS

Commission Agents.

Every Attention Paid to Consi nmen

References: BANK OF NEW SOUTH WALES, Sydney.
C. J. KLEIN & BUTSCHKE, Hamburg, German

American Manufactures in England.

A merchant of long experience in Birmingh England, will devote time to the sale of, and to the procuring of orders in the English marketfor American manufactures. For particulars apply to the Office of The Iron Age, 83 Reade St., N. Y.

CHARLES OTTO.

Importer & Dealer in HARDWARE. Manufacturers' Agent, etc.

19 & 14 Front and 250 & 252 Market St., San Francisco

I am prepared to make arrangements with Eastern nanufacturers to act as their agent for the sale of Hardware, etc., on the Pacific Coast.

REFERENCES:

Sargent & Co., 37 Chambers Street, New York. VanWagoner & Williams, 82 Beekman St., N. Y T. Hessenbruch & Co., 10 N. 5th St., Philadeiphis, The Pennsylvania Tack Works, Norristown, Pa. The Pacific Bank, San Francisc

Wanted.

A young man of thorough education in all branches of iron manufacture, and several years' practical experience in silver and iron mining and general four-dry and car wheel business, desires a position as superintendent of mines, furnaces or foundry business. Best reference furnished. Address

MINING ENGINEER, Office of The Iron Age, 83 Reade St., N. Y.

NOTICE!

The public are cautioned against constructing, selling or using Machines for Pressing Sand Molds employing the inventions or improvements described in the following Letters Patent of the

United States:

Letters Patent No. 26,821, for improvements in molding for metal castings, granted to Albert Eames and J. P. Broadmeadow, November 29, 1859, and which have been further extended.

Letters Patent No. 153,798, for improvements in machines for molding metal castings, granted to Albert Eames, August 4, 1874.

REVIOLDS & CO.

REYNOLDS & CO.,

New Haven, Ct. Wanted, Light T Rail.

Parties having for sale 50 to 100 tons of slightly worn, 25 to 35 lbs. T Rail, can find a purchaser at a reasonable price, by addressing (with price delivered in New York or Philadelphia.)

D. G. AMBLER, Utlea, N. Y

Hardware Business.

FOR SALE.—An old stand, facing two streets; rent low; good help, and doing a prosperous busi-ness; large back country; the best reasons for sell-ing. Address

G. M. BRUBAKER, Millersburgh, Dauphin Co., Pa.

Engagement Wanted.

A business man of large experience in manufacturing and trade, accustomed to the management of men and works, desires an engagement in any branch of business or industry. References of the most satisfactory character given.

dress J. E. G.,
Office of The Iron Age, 83 Reade St., N. Y.

Wanted.

A young man with considerable business experience, active, energetic and of good address, desires a position as sales agent for a line of iron manufacture or other staple goods. Has excellent business habits, and is a hird worker. Acquainted with all manner of office work, and would make himself usoful in that capacity when not otherwise employed. Good references. Address. Office of The Iron Age, 220 S. 4th St., Philadolphis.

For Sale. No. 5 Geared Stiles & Parker Press. Perfecter. Quite new. Latest pattern. B. D. WASHBURN & CO., Boston.

SPECIAL NOTICE MEN'S SINGLE GUNS. addition to the former line of A. Simon's, Liege,

SILESIAN SHEET ZINC. LOUIS WINDMULLER & ROELKER,

20 Reade Street, N. Y. SPECIAL NOTICE.

I have three patents for Dies, Machinery and Tools-for making Augers and Bits, each running seventeen years; dated as follows: Dec. 19, 1865; January 31, 1866, and July 3, 1866. There is a special: ciaim on each of the dies. All persons in-fringing on said patents will be held responsible to the extent of the law. Russelt Jennings. Dzer River, Conn., Sept. 7, 1874.

DEF RIVER, Conn., Sept. 7, 1874.

RESIDENT BUYER.—A gentleman of more than twelve years' experience in the general hardware business, and for several years past acting as buyer of the entire stock of one of our large Eastern wholesale houses, will make arrangements to act as buyer for a few Western or Southern correspondents. Thoroughly understands the requirements of both markets, and being constantly in communication with all Eastern manufacturers, offers his services in this behalf. Best of references furnished. Address

G. U. S..

P. O. BOX 4713, New York City.

TO LET.

A Light, Handsome Office.

Possession Immediately. HERMANN BOKER & CO., 101 Duane Street, N. Y.

Trade Report.

Office of The Iron Age. Wednesday Evening, May 2, 1877. The past week has been notable in the financial market, chiefly for the activity of speculation and the advance of from 3 to 10 per cent. in the value of securities. The money

cent. on call loans, and 31/4 @ 5 per cent. for prime business paper.

The gold market has ruled very steady at 106% @ 107%. The effect of the war in the East has evidently been "discounted" in the gold market, and unless other powers become involved it is not likely that the premium will advance much in consequence. Foreign exchange has been strong at \$4.871 @ \$4 88 and \$4.891/4 @ \$4.90.

market has remained very easy at 2 @ 8 per

The following table shows the highest and

Thursday. 107½ Friday. 107½ Friday. 107½ Suturday 107½ Monday. 106% Tnosday. 106%		m:
Friday	Lowes	Lowes
Saturday	106	106
Monday		106
Tuesday		106
		106
Wednesday		106
41 Case County C	107	107

The market for government bonds has been dull and steady, closing at the quotations given

In the stock market an active demand to cover "shorts," and a speculative feeling created by the war news, accounted for the advance in stocks already noted. The principal dealings have been in Morris & Essex, Delaware, Lackawanna and Western, Western Union, Delaware and Hudson, St. Paul preferred, Rock Island, Lake Shore and North western. We give below the closing quotations of active shares.

The last bank statement was favorable in that it showed a large increase in the surplus reserve, due chiefly to the gain in legal tender notes. The following is a comparison of the averages for the past two weeks:

April 24. April 28. Differences.

Loans ... \$257,609,700 \$255,733 800 Dec, \$1,875,900 Begal tend's 45 895,200 48 865,000 Inc. 23,1200 Deposits. 26,031,400 222,901,200 Inc. 2,988,800 Circulation 15,984,600 15,996,100 Inc. 12,100

The foreign trade movements for the week are shown in the following tables:

IMPORTS For week ended April 28:

1875. Total for week. \$4,744,843 Prev. reported.119,872,017	1876. \$5,092,609 106,633,078	
Since Jan, 1\$124,616,859	\$111,725,687	\$110,272,008
Among the imports of were articles valued as		merchandise
		ant. Value.

	Quant.	vaine,
Anvils	170	\$1,491
Brass goods	8	1.998
Bismuth	8	3,056
Bronzes		815
Chains and anchors		1,177
Copper		12,626
Cutlery		18,494
Guns		3,901
Hardware		586
Iron, pig, tons	460	12.512
Iron, sheet, tons	05	2,295
Iron, other tons	43	2,061
Metal goods	197	14.887
Nails		908
Needles		9,380
Nickel		99
Old metal		7,093
		1.144
Per caps		
Saddlery		1,235
Steel		9,175
Silverware		9:4
Tir, boxes	13,467	71,023
Tin, 1718 slabs		22,310
Wire	168	2,411

EXPORTS EXCLUSIVE OF SPECIE.

For week ended April 28:

For the week \$4,964.837 Previously reported . 76,271,507	1876. \$3,589,380 79,047,595	1877. \$4,591,867 88,733,045
Since Jan. 1\$81,236,344		\$93,324,915

Bid. Asked.

U. S. Currency 68	125
U. S. 6s 1881. reg 113%	1133
U. S. 6s. 1881. con	114
U. S. 6's, 1865, reg	
U. S. 6's. 1865, cou	eron.
	110
U. S. 6's, 1865, new reg	
U. S. 6's. 1865, con	110
U. S. 6's. 1867, reg	113
U. S. 6's. 1867, cou	112
U. S. 6's. 1868, reg115	115
C. S. 6's. 1868, con	115
U. S. 10-40 reg	112
IT 9 10 40 con	113
U. S. 10-40 cou	
U. S. 5s. 1881, reg	
U. S. 5e, 1881, con	111
U. S. 4168. 1891, reg 1083a	108
The following are the closing quot	ations o
active shares :	
Bid.	Aske
Chicago & Northwestern 2034	20
Currente or Mortinite of City	40

U. S. 4368. 1891, reg	10854
The following are the closing quots	tions of
active shares :	
Bid.	Asked.
Chicago & Northwestern 20%	20%
Pref 4136	4434
Chicago, Rock Island and Pacific 91%	925
Chie Pay & Onines 1005	100%
Chic., Bur. & Quincy	27
Cleveland and Puttsburgh 86	87
Chicago and Alton	9136
" Pref	0176
Consolidation Coal	96
Canton	200
Del., Lack, and Western 5114	51%
Delaware & Hudson Canal 47%	48
Adams Express 96	98
American Express 52	53
United States Express 4014	4136
Wells, Fargo & Co. Express 83	84
Erie 734	736
Harlem	136
Hannibal & St. Joseph 10%	3.1
" Pref 20	21
Illinois Central 55%	57
Lake Shore	51%
Michigan Central	42%
Morris & Essex	76
Milwankee & St. Paul 1834	19
Pref 48%	49
Mariposa	
New York Central 93%	534
New Jersey Central 8%	933
New Jersey Southern	979
Ohio & Mississippi	4.50
Pacific Mail. 23%	233
Panama	93
Quicksilver	16
" Pref 29	23
St. Louis, Kansas City Northern 4	436
" " Pref —	25 %

oledo, Wabash & Western....

MINING STOCKS.

Mr. Ogden Haight, No. 65 Wall street, sends us the following report of the business of the New York Mining Stock Exchange for the past week:

1	week:					
		COPPE		CKS. Bid.	Offered.	Sales.
	Allouez Mining C	0		\$3.00	\$8.00	50
	Atlantic Calumet & Hecla	Win C		6.75	7:00	400
1	Central	Milli. C	0	39:50	40.20	30
	Franklin	6.6		11.75	18'00	100
•	Madison	66		.50	.30	****
	Mesnard Minnesota	66		37,4	(62,14	
	National	0.6		50	.75	500
	Osceola	8.6			4.00	
,	Pewabic	6.6		8:3714	4.00	600
1	Quincy	86		38.50	41.00	1111
ı	Ridge Rockland	60	0 0 0	2.75	4.00	****
	ROCKIANG		* *	****	1144	****
		COLI	STO			
	Am. Flag G. M. C Bobtail " Lacrosse " N. Y. & Col. Seaton Consolidar Alpha Ney Gold	o., Col		.12	.14	2,600
	Lacrosuo	46		1:45	1:60	4,000
	N. Y. & Col.	1		1:25	2:50	5,200
۱	Seaton Consolidat	ted		4:50	4.62%	****
			er	10.00	1111	
1	Belcher	64	**	5:00	****	****
	Bost & Belcher Caledonia	66	* 1	15.00		****
	Challe Constant		**	2.00	XXXX	****
	Consol'd Imperial	1 166		30.00	1.50	****
	Consoi a virgini			31:00	****	4 7 7 7
	Crown Point	6.6		4.00		****
	Eureka of G. V.	66	4.4	2.20	3.20	****
ŀ	Exchequer Gould & Curry	4.6	4 1	2.00	****	****
ı	Hale & Norcross		0.0	1:00		* * * *
)	Julia	0.0		1.00	****	****
	Justice	6.6		8:00	10.00	****
	Kentuck	8.8	2.4	3.00	****	****
)	Mexican Overman	8.6	* *	6.00	****	****
6	Ophir	6.0		15.00 10.00	13:00	100
e	Raymond & Ely	8.6		3.00		100
1	Savage	6.6		2.00	****	****
	Segd. Belcher	6.6		10.00	****	
	Sierra Nevada Silver Hill	66		5.00	****	****
1	Union Con.	86	× 6		* * * *	****
	Yellow Jacket	0.6	**	5:00	****	****
		LEAD				
	C. Y 1 7 1					
	St. Joseph Lead C	:0		5.00	6.00	* * * *
1		FILVE	ER ST	OCKS.		
	Silver Islet Minin	g Co		*50	1.00	
F				PANIE		****
r						
3	Bobtail Tunnel				4.30	23
				S STOC		
	Smith & Parmele Hukill of Colora United Petroleum	e		.10		
)	Hukill of Colora	do		3.87	¥	
,	United Petroleum	Farm	9	. "()	5	****
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GENERAL HARDWARE.

The demand for Hardware, although by no means active, cannot be called dull for the season. Some houses are fairly employed, a few are behind on their orders, and again there are some who complain of a great falling off in the volume of trade compared with a few weeks ago. In Foreign Hard ware the same conditions prevail, and prices, both of foreign and domestic goods, are remarkably firm.

The following letter explains itself: New Haven, Conn., May 2, 1877.

To the Editor of the Iron Age: Please insert in Thursday's paper: "At the meeting of the United Lock Association, held this day, the following resolutions were adopted: "WHEREAS, The Jacobus & Nimick Manufacturing Co., of Pittsburgh, have persistently violated the rules adopted by the Association, it is

it is "Voted, That the said Jacobus & Nimick "Voted, That the said Jacobus & Nimick Manufacturing Company be, and are hereby expelled from the United Lock Association." Voted, That the above be published officially in The Iron Age."

Attest, G. B. GERMOND, Secretary.

The demand for Nails is generally reported far more satisfactory than the prices obtained. The rates continue, nominally, \$2.60 @ \$2.65 for 10d., but, as we remarked last week, there is no difficulty in placing orders for 100 kegs and over on the basis of \$2 50, net, at which price the market is strong.

G. B. Walbridge & Co., No. 83 Reade street, have in stock a good supply of "Kitchen Ice Tougs" for family use, which they quote

1	at the	follow	ing	ne	t	p	r	ic	e	g	6.6					
l	Plain J	panned											,	per	doz.	\$2.2
ĺ	Galvani	zea									0 1	 0			44	2.0

These Ice Tongs will sustain 75 pounds. They were first introduced to the trade in July. | Chambers and 91 Reade streets. 1876, and are, consequently, but little known : Government bonds at the close were quoted they are made from best refined iron, and the points are case-hardened.

> The Iron City Bellows Company, of Pittsburgh, Pa., have issued the following price list
> Warnfact'y, Bailer Lane W'rs, Sheppield, Eng.
> Warehouse: 30 Gold Street, under date of 1st inst. This list is subject to discount 30 per cent.

Blacksmiths', Coopers' and Molders' Religions

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26	6.6						۰								1:	3.	00	26	0.6									ì				1	1.0	00
28	4.6														13	5	00	28	0.6										Ĭ		Ī	1	2.0	0
30	4.6														1'	7-	00	30	6.6													1	3.0	0
32	6.0	į.													1	8	00	32	6.6														4.6	
84	4.9														2	ŋ.	00	34	4.6														6.6	
36	6.6														9	9.	00	36	6.6														81	
38	6.6																00	38	6.6														0.0	
40	6.6																00	40	0.6														3.0	
42	6.6																00	42	0.6														7.0	
41	6.0																00	44	6.6														2.0	
46	6.6																00			1				۰		0			0	۰	•			•
48	6.6																00																	
50	6.6																00																	
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9	inch													٠			00	12	inc	٥.												40	4.0	m
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The Manhattan Brass Co., 83 Readc street, have issued a catalogue and price list of their specialties, in which they illustrate an assortment of fancy Brass Tubing, Lightning Rods Brass and Iron Jack Chains, a large assortment of Oilers and Lanterns, Student's Lumps, Fender Trimmings, &c. The following discount

	sheet accompanies the book :	
74		per cent.
%	Sheet Brass	 10
	German Silver	 16
	Brass and Copper Wire	 10
	" Tubing	 ne
	Zinc Tubing	 ne
3/4	Spiral Seam Tubing	 net
% 7/4	Copper Cable Tube Lightning Rod	 2
12	Copper Rivets and Burs	 10
% %	Brass Ferrules	 90
84	Brass Jack Chain	 Full Full
32	Iron "	 Ed
	Brass Butt Hinges	 Ki
	Brown's Patent Picture Hook	 9
	Cowell's Patent Door Spring	 K.
36	Oiler Sets, Prior's Patent	
16	Oilers, " "	 4
18		 4
	" Olmsted's "	

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Hurricane Pate	nt Lante	rns			 į,		í.									ì		5
Storm	44																	.1
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Woodward	6 ×																	
Marine Lamps.			•		•	. ,		•	*			•	î			-	î	9
Brass Hand Las	nna	4.0	*		*		*	×			•		•				•	2
Student Lamp	Stand	* * *			•		×	*		 *		۰		,	*	*	*	. 0
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" Manhattan " Spencer	Student	Leth																
																		2

Bracket Lamps
Nickel Cuspadores
Nickel-Plated Trays
Grate Trimmings
Brass and Nickel Fenders
Baby Carriage Hardware
Eyelets The Russell & Erwin Mfg Co. have issued, under date of May 1st, an illustrated catalogue of their "All Wrought Iron Japanned Pad locks." On the title page they say : " All the Iron Padlocks named in this list, are manufactured of Wrought Iron, with or without Brass Bushings, in the most careful manner. We have paid particular attention to the improvement of the quality and finish of these goods, and in connection therewith have added a line of Steel Key Padlocks, embracing several varieties which we propose adding to from time to time as occasion may require. The Steel Key now introduced in this line of goods, is manufactured in like manner and under the same letters patent as that made by us for our Door Locks, which, in use for the past seven years, has proved the best Key in ticeable in the market after the last report was the market. As it is made of steel, with the sent, but it has since disappeared, and the market. is a serious objection to Keys made of brass with steel or iron bits." These Keys are all

nickel-plated and have the name of the company

The catalogue contains 39 illustrations of Iron,

beside some new patterns of Brass Padlocks

We have also seen the advance sheets of their

new list of Cabinet Locks, which will contain

cuts and descriptions of each Lock, with the

price of every variety given under the cut. The keys, many of which have fancy bows, in vari-

ous testeful designs, will also be illustrated.

It will, in addition, contain complete compara-

tive lists, giving the Russell & Erwin Manufac-

turing Company, Eagle, and Gaylord numbers.

and date of the patent stamped on the bow

A. G. Hatry, Pittsburgh, Pa., has issued the following circular and price list under date of

28th ultimo:

PITTSBURGH, April 28th, 1877.

Since the issue of my last circular the price of Naits has declined, and Iron sympathizing with it may be quoted a shade lower. Still these prices are not remunerative to the manufacturers, and an advance is looked for. The card was again advanced to two cent rates on the 18th inst. Parties desiring to purchase need have no fear, as the prices cannot go lower; and I quote the market about as follows:

ows:
ron, assorted orders, 1 8-10 rates.
tails, 2-50 for 10d.
Rates of freight on nails equalized with the

earest mill. heet Iron, light gauges, 3 2-10 rates for No. 24 as a Dasis. Plate Iron, 1-8, 3-16 and 1/4 in. thick, 2 8-10 cents per lb.

per 10. Tool steel, 12 cts. per 1b. Machinery Steel, 8 cts. per 1b. Tire Steel, 5 cts. per 1b. Window Glass, 6) and 20 per cent. discount from

quality. Above prices are 60 days, or 2 per cent. for

Soliciting a share of your patronage, I re-ain, yours truly, A. G. HATRY.

ain, yours truly, Company and Branford Lock Works are now

J. & Riley Carr have removed from their old stand in John street to No. 30 Gold pected. We need but remind our friends of street, as will be seen from their circular, which we print below:

Warehouse: 30 Gold Street, Between John and Fulton Streets, NEW YORK, May 1st, 1877.

On and after May 1st, our business and office will be conducted at 30 Gold street, N. Y., where we shall continue to keep in stock a full line of the celebrated "dog brand" Files and Rasps, also of Bar and Sheet Steel suitable for

all purposes.
We have extended facilities for supplying We have extended facilities for supplying orders promptly, and we trust, by giving close application to the requirements of our numerous friends and customers, to merit the same favors in the future as in the past.

We remain, respectfully,

J. & RILEY CARR.

HENRY MOORE, Attorney.

Among other removals we notice that John Fisher, agent for Spear & Jackson and Needham Bros., has removed to No. 82 Chamberg street, up stairs, and Spencer & Underhill have removed from their old stand in Beckman street to No. 94 Chambers street.

We have received the following circular:

BIBMINGHAM, LIVERPOOL, 25 Abchurch Lane, LONDON, April 1, 1877.

DEAR SIR: We have the pleasure to advise you that our late partner, Mr. John Landers, has joined the firm of Messrs. C. Congreve & Son, 104 John street, New York, who will in Son, 104 John street, New York, who will in future carry on the American business hitherto conducted by us.

We have therefore to express the hope that you will extend to them the favors, which in the past, you have been good enough to bestow upon,

Your obedient servants,

LANDERS BROS.

mention has been made in these columns, may here, and although as yet quiet, our market is, now be said to be fully under way. They have appointed as actuary Mr. Goldey, who was forgold figures: Straits, 16%c.; English Refined, merly connected with the Hardware depart- 16%c. @ 161/cc.; ditto Common, 16c., and

is a stock company, all members are entitled to and we quote at the close, gold, per box, or-

BRITISH IRON MARKET.

(Specially reported by cable for The Iron Age.)

EWEDNESDAY, May 2, 1877. Scotch Pig.-Immediately after our last able report was dispatched prices went up, and have since been steadily firm, the market being strong, with a large business doing. The following are makers' prices:

Manufactured Iron.-The market is iet, and prices nominal. Best Staffordshire Bars are quoted £7. 10/ @ £9.

Rails.-There was some improvement no-

IRON.

American Pig .- The tone of the market is decidedly weaker than at our last writing, and eash buyers can get important concessions. We hear of the sale of 1000 tons Allentown No. 1 Foundry at \$18, prompt cash. The usual quotation, however, is \$19, although offers have, in many cases, been made at very low prices. The Thomas Iron Company report sales mounting to 800 tons of No. 2, No. 2 extra and No. 1 Foundry, at \$18 and \$19. We quote: Foundry No. 1, \$18 @ \$19; Foundry No. 2, \$17:50 @ \$18:50; and Gray Forge, \$17 @ \$18.

Eglinton, \$25; Glengarnock, \$26.75 @ \$27; Coltness, \$28.

Rails .- We note the sale of 1000 tons Steel

\$38 at mill, and Steel, \$47 @ \$50.

Old Rails.—The market is very dull; 125 ns sold at \$19. We quote \$18 @ \$19.

Scrap.—No sales to report. The quotation of No. 1 Wrought from yard is \$25.

METALS.

Copper.-Sales on the spot have been lim ited for the week to 400,000 pounds Lake Superior at 191/c. @ 191/c. Aside therefrom list.

Borax, ref. in cases, 100 lbs., 11%.

"in barrels, 300 lbs., 10.

Babbit Metal, 8 to 50 cts. per lb., according to facturers, deliverable in June, July and August, from one of our mining companies at 191/4c and 19½c. We furthermore understand that I would also call the attention of the trade to the fact that all the Nails I sell are assorted by Coyne's Patent Automatic Nail Picker, which is being rapidly adopted by the Nail manufacturers. All Nail factories having these machines give to their customers an article which is free from dust, shvers, headless or imperfect Nails; and every Nail in the kegs can be used, and the consumer gains at least three pounds in each keg, which he has heretofore got in worthless scrap and dirt.

Always ask for Coyne's Machine Picked Nails. Special prices given on application.

Soliciting a share of your patronsge, I results of the strength of the continues depressed, Best Selected still and 191/2c. We furthermore understand that while continues depressed, Best Selected still being telegraphed £77 and Chili Bars £69, the The Hart, Biven & Mead Manufacturing latter again having receded £1. In Europe the impression seems to prevail that the war can ready for business in their new store Nos. 107 only do harm to Copper, while on this side, on the contrary, at least so far as superior quality of Copper is concerned, the very reverse is ex what took place when the Crimean war broke out, when the first shipments were success fully made to France from here at 25c, gold a pound. And so far as European statistics have any value at the present moment, they have been improving during the month of March the visible supply in England and France April 1 being 42,533 tons, against 39,363 and 40,110 in 1876 and 1875, while Chili Bars stood on the 1st ult £70, 10/, against £77 and £80. The excess over 1876 was thus but about 3000 tons, and 2500 over 1875, which is fully counterbalanced by the reduced supply on this side, while ith price is 10 per cent. lower. There is a steady inquiry for manufactures, which we quote 31c for Sheathing and 32c. for Bolts and Braziers New Yeilow Metal Sheathing, 20c.; Yellov Metal Bolts, 25c.; and Nails, 20c., net cash.

Tin .- Telegrams are to hand to-day from Singapore, according to which the April shipments were but 300 tons to the United Kingdom and 250 to the United States. A further dispatch reaches us from London to the following effect: "Straits Tin, £70; rather more ining effect: "Straits Tin, £70; rather more inquiry. April deliveries in England and Holland, 1500 tons; stock here, 9300 tons." That Tin 1500 tons; stock here, 9300 tons." That Tin should have risen £1 in the face of the unfavorable statistics here cabled, seems surprising, but may find its explanation in the decreased shipments going on from the Straits just at present. However this may be, it seems evident that the effect of the war has been fully discounted, and that for the moment Tin appears to be rather disposed to rally. There is consequently a rather less desponding feeling British Australia. The Hardware Board of Trade, of which consequently a rather less desponding feeling ment of Bradstreet's Commercial Agency. The other officers of the company are: George S. Billiton Tin sales will be held at Batavia (Java),

Corblu, president; George G. Moore, secre- at the following dates: June 11, August 13, tary; U. T. Hungerford, treasurer; and Fred- Oct. 8 and Dec. 10, 1877, according to the cirerick G. Dow, counsellor. The expense of membership has been fixed at \$50 per annum. Although the Hardware Board of Trade, Limited, Tin Plates have become 'quiet once more, a vote and a voice in the management equally dinary brands, large lines, as follows: Charwith the owners of stock. The objects for coal Bright, \$6.62\(\times\) @ \$6.75; ditto Ternes, as follows: "Both makers and holders are sellers for prompt delivery at bottom prices. For forward delivery more is asked, but purchasers do not show any disposition so far to pay an advance for delayed shipment."

Lead.—Several hundred tons of Common

Domestic have been forced off at 6c., currency, since last report. The spring trade has again been a great disappointment, but it is hoped that the coming months will make some amends for it. The speculative stock held out of the market here by Western parties does not exceed 1000 tons, and of Richmond there are 2000 tons here and affoat. At the West, Lead for corroding purposes has been sold at St. Louis at 61/4c., urrency, to the extent of about 100 tons; here they say they will at the utmost not pay over 61/sc., currency, for the same quality, if as much, out there, since soft Missouri has actually been offered at New York at 61/4c., curbow, stem and bit in one piece of metal, the bit cannot work loose and drop out, which £6.5/. Welsh are quoted£5.5/@ be equal to 605c., currency, at St. Louis. We bit cannot work loose and drop out, which £6.5/. Herold, of this city, for the following telegram just to hand from the agents of Mr. Figueroa, at London: "Lead advancing. Holders are not disposed to sell, and ask higher prices. We quote 'Figueroa,' Spanish, £21.10/ per ton, cost, freight and insurance." This is equal to 6%c., gold, here. Manufactures of Lead are in tolerably good demand. Bar at 7%c., Pipe at 9c., and Sheet at 9%c., less the usual discount.

Spelter and Zinc .- Domestic Spelter is in very moderate request, and the so-called Common Western brands would not bring over 61/8e., currency, delivered here, while the better Scotch Pig.-Importers are holding Scotch known ones would fetch 61/2c., currency. There ig a good deal firmer, owing to higher prices is no Silesian here, nor is any expected for the on the other side, advanced freights and higher moment. We quote the same 6%c. @ 6%c., gold, but there is not the least symptom of gold, nominally. Mr. William Faulsen, of speculation or excitement in the market, and this city, has received the following interesting ales are almost nothing. We note the sale of news from Hamburg, dated April 17: "Our 100 tons Coltness on private terms. We quote Spelter market, under the influence of unfavorable political events, has, like most other branches of business, been suffering of late; the dealings slackened and \$47-50, at tidewater. We quote Iron \$35 @ the metal showed like firmness, but at the slight decline rather large lots have changed hands at Breslau, which at all events is an encouraging sign." Sheet Zinc, events is an encouraging sign." The market still lacks vitality here, at 8c. @ 81/2c., gold, Mosselmann, and 7%c. @ 71/2c., currency, Domestic.

Nickel.-The metal shows a little more teadiness within the range of \$1.90 @ \$2,

Antimony .- A moderate trade is transacting at 12c., gold. London (by cable) quotes £50.

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending May 1, 1877:

week enacing may	1, 10,,,
Hamburg.	Quan. Value.
	Clocks, bxs 166 \$2,704
Quan. Valu	e. Cartridges, bx 1 56
Ag. 1mp., pgs. 452 \$13,60	8 Revolvers, bx. 1 291
Mach'y, pkgs 34 3,28	
Tel. insts., cs. 1 56	
Hardware, cs., 70 2,13	
	Cuba.
Sew. mach., cs 647 16,49	
Clocks, bzs 22 2	98 Tanks 30 300
Bremen.	Grindstones 175 128
	Nails, cs 12 350
Ag. imp., pkgs 210 4.69	97 Pig iron, tons. 25 787
	50 Mf. iron, pkgs. 101 1,721
Hardware, cs. 18 7	80 Ag. imp., pkgs 34 1,441
W'dmills, bxs. 76 1,4	00 Belting, cs 2 340
Mach'y, pkgs 7 8	50 Gas meters, cs 3 447
Antwerp.	Coal, tons 350 963
	Clocks, pkgs 71 605
	79 Zinc, cs 3 125
Ag. imp., pkgs 93 3,1	90 Carbines, cs., 47 13,875
	02 Mach. oil, gals 970 292
	50 Nails, kegs 436 1,541
Pumps, pkgs 5 3	60 Hdw., pkgs 138 2.744
Glasgow.	Sew. mach., cs 42 1,481
	Hayti.
	50 Lamps, pkgs 1 88 60 Nails, bxs 80 150
Hdw., pkgs 6 1	
Liverpool.	Cutlery, cs 4 114 Powder, lbs1000 229
Pit'd ware, cs. 1 1,1	
Ag. imp , pkgs 148 6,3	
Hdw., pkgs 106 4.1	
Hdw., pkgs 106 4,1 Mach'y, bxs 11 1,3 Metal g'ds, cs. 5 6	ombia.
Metal g'ds, cs. 5 6	44 Sheetiron, bdls 67 350
Watch mtl., bx 1 1,0	
	00 Cutlery, bas. 61 1,360
	00 Sew. mach.,cs. 2 44
Pistols, box., 1 7	00 Mach'y, pkgs. 55 1,893
Lamp g'ds,p; 8 44 1,8 Pistols, box. 1 7 Cocks, bxs 324 8,0	01 Mf. iron, pkgs. 8 51
Spelter, pgs., 54 2	79
	Argentine Republic.
London.	Car wh'ls, sets 35 1,495
Clocks, bxs 170 2,6	
	68 Clocks, cs 4 213
	69 Nails, bxs 150 768
Ag. imp., pkgs 58 1.6	90 Firearms, cs 8 825
Mach'y, pkgs. 85 13,4	
	71 Tacks, bxs 15 95
Spelter, *labs.8855 27,3	200 Ag. 1mp., pkge 156 2,767
Nails, cs 10 3	180 Sew. mach., bx 124 1,850
Canada.	Venezuela.
Lamps, case 1	62 Coal, tone 18 97
Iron, tons 15	86 Plated ware, cs 6 507
	60 Hdw., pkgs 69 979

Brazil.Hdw., pkgs... 27 653 Coal, tons.... 224 672 Hardware, bxs 163 Ag. imp., pkgs 11 Mf. iron, pkgs 13 672 461 Ag. imp., pkgs 140 British West Indies. Lamps, pkgs... 4 61 Hdw., pkgs... 7 318

British Australia.

Hardware, cs., 114 1,800 1,800 Pumps, pkgs. 3 Lamps, pkgs. 3 Lamps, pkgs. 6 Ag. imp., pkgs 10 Nails, kcgs. 500 Powder, kcgs.10c0 Mf. iron, pkgs. 5 Coal, tons. 213 Harre. Copper, bbls.. 90 22,501 Ag. imp., cs... 41 1,562 Lisbon. Ag. imp., pkgs 25

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week end ing May 1, 1877 :

Order. Spiegel, kilos, 203,-386 Ore, tons, 350 Hardware. Hardware.
Bingham Wm. & Co.
Chains, 5
Boker Hermann & Co.
Anvils, 50
Packages, 6
Cutlery, cs., 2
Carev & Moen,
Wire, bdls., 190
Folsom H. & D.
Mdse, pkgs., 2
Fleitmann & Co.
Wire, pkgs., 93
Fox W. B. & Bro.
Packages, 10 Steel. Steel.
Brown William,
Bundles, 103
Linlay E. H.
Cases, 46
Montgomery J. M.
Cases, 3
Mitander Nils
Bars, 4
Naylor & Co.
Tires, 30
Sulzbacher, H y m Tires, 30 Sulzbacher, H y man, Wolffe & Co. Bars, 238 Woodford W. O. Cases, 19 Order. Packages, 10
Loeb & Co.
Cotton ties, pkgs., 2
Moore Henry,
Files, cks., 5
McCoy & Co.
Costs f Cases, 19
Order,
Boxes, 1
Bundles, 405
Packages, 36
Cases, 6
Tires, 28
Axles, 1 Casks, 1
Nickel, bxs., 2
Mdsc. pkgs., 10
Owens Alfred,
Case, 1
Spies. Kissam & Co.
Empty cartridge
cs., 4
Schoverling & Daly,
Guns. cs., 2 Metals. Byrne Jos. & Co.
Tin plates, bxs., 620
Bruce & Cook,
Tin plates, bxs., 730
Fraser J. Guns, cs., 2 Varney & Doe, Mdse., pkgs., 4 Ward Asline, Mdse., pkgs., 5 Fraser J.
Type metal, plgs, 400
Freeborn W. E. & Co.
Sheathing metal, cs., 25
Hopkins E. T.
Tin pates, bxs., 1130
Naylor & Co.
Tin plates, bxs., 3913
Pfizer Chas. & Co.
Antimony, cxs., 1
Phelps, Dodge & Co.
in plates, bxs., 10,-811
Black taggers, bxs., Order, Casks, 2 Packages, 10 Anvils, 80 Wire, cs., 5 Iron. Henderson Bros.
Pig. tons. 250
Lang W. Bailey & Co.
Bundles. 240
Bars. 190
Mitander Nils,
Bars. 1255
Naylor & Co.
Scrap, R. R. loads,
159
Wire rods colls. 1020 Black taggers, bis. 100 Lead, pigs, 500

Order, Tin plates, b.xs., 7552 Lead, bars. 4567 Lead, pigs. 795 Tin, ingots. 570 Tin, siabs, 2659 Zinc, pigs. 1281 Without bills of Lading. Lead, plgs. 916 Tin, slabs, 1489 Spelter, plates, 1565 Antimony, cks., 35 COAL.

Wire rods, coils, 1020 Spiegel, tons, 230 Parker A. B. Bars, 324 Sampson G. G. Pig, tons, 100

Order, Spiegel, lots, 1 Bars, 971 Tubes, 200

We hear of a considerable movement of coal this week, especially in the larger sizes used for steam and manufacturing purposes. And while prices do not show any advance, the market is slightly firmer, and there is a much better feeling among the dealers. It is reported that manufacturers in all directions are putting in large stocks and using every available foot of ground for storing. The talk of the combination, and the slight advance at the last auction sale seem to have bad a slight effect upon the market in bringing buyers in and slightly strengthening it. The deriveries of auction are larger than last week, and except for the small margin, the trade would be considered satisfactory. The companies still adhere to the idea that the combination exists, and that the production will be limited the first of June as per programme, the coal now going forward applying upon the distribution. This does not, however, seem to make any impression upon the market. Prices bave changed somewhat, a few of the sizes going up while others are quoted lower. The demand for the smaller sizes is somewhat dull. Our quotations will be found on page 24.

OLD METALS, PAPER STOCK, &c.

The Old Metal market is still laboring under a season of duliness, and no heavy transactions have occurred since our last report. The quotations of Lead and Brass have fallen off 1/4c. a pound. All other stocks remain unchanged. The demand for Rags and Paper Stock is very light and prices are growing weaker. We quote the following as the current purchasing

rates:

Old Metals.—Copper, 14c. @ 15c. per lb.; Yelow Metal, 10c.: Brass, 8½c.; Composition, heavy, 12c. @ 13c.: Lead, solid, 4½c.; Tea Lead, 4c.; Zinc, 4c.; Pewter, No. 1, 13c.; do., No. 2, 8c.; Spetter, 5½c., Wrought Iron, \$20 per ton; Light do., \$10 per ton; Stove Plate, \$8 per ton; Machinery, do., \$11 per ton; Burnt Iron, \$4 per ton.

Rags, &c. —Canvas, Linen, 4½c. @ 5½c.; do. Cotton, No. 1, 5½c.; No. 2, 2½c.; White, No. 1, 4½c.; No. 2, 3½c.; Colored, do., 2c.; Mixed, Wsolen, 2c. @ 3c.; Soft, do., 5c.; Gunny Bagging, 1½c.; Jute Butts, 1½c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3½c.; Newspaper Stock, 2½c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakurr Jinn., No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1½c.; Grass Rope, 3c.

PHILADELPHIA.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, May 1, 1877. Business is still dull, and complaints are numerous that times are hard, and money scarce. There is, however, a general impression that the condition of affairs in Europe will be of immediate and great benefit to this country. This is, no doubt, true to a certain extent, but to our manufacturers, with probably the single exception of the demand for war material, the benefit will be indirect. Agriculture, which is supposed to be the foundation of our national advantages attract the attention of the unemployed, drawing them from manufacturing centers, and "placing them where they will do the most good." In proportion as the growing crops in southeastern Europe are destroyed, or wasted by the combatants, so will the de-mand be upon this country to supply the de ficiency. Not only will present stocks and the growing crops be sought after, but a vastly increased area must be prepared for following seasons. Beside the destruction in war, the withdrawal of labor from its usual changels must be taken into account. and the consequent neglect of agriculture in Europe. Here, then, will be an abundance of employment, and soon labor will be in demand, with an absolute certainty of at least fair remuneration. It may not be such work as many would prefer, nor such as they have been actively employed, with good prospects for the settled. For standard specular ores \$6.60 to Tenuseec.

to become remunerative, but capital will find 21/2c. Common Plates, 21/2c.; Tank Iron, 23/4c., profitable employment, the shrinkage of in- with higher prices according to quality. comes be arrested, and the whole country start out on a new era of permanent prosperity. Whatever may be the result of our competition with other countries-in manufactures-it is as spasmodic and uncertain. Quotations range to the quality. Blackband and native soft beyond question that in agriculture we sur- from 3c. to 3%c., according to quantity and pass them all. With assured prosperity to our quality. Market quiet. farmers, other departments will ultimately be certain to share in its benefits. The advance in breadstuffs and provisions, however, is looked upon by some as an unfavorable fea- diate necessity for orders at any of the millsture, inasmuch as the present price of labor is all having more or less contracts on hand-but held at Pittsburgh within a few days, to proalready so low as to barely procure the commonest necessities of life, and if the rates for these are advanced wages must be increased in The future of the market depends upon the proportion. Admitting this, in order to maintain the equilibrium, an advance in the products of labor must necessarily be established, and in at work, but the anxiety of each to secure busi- be said, however, that the Old Rails are in the this way all classes will share in the general prosperity arising from the enhanced value of that prices are liable to be shaded one against our products. This labor question is already another, until finally a lower range of prices attracting attention, and we notice parties in are established all round. Some few sales have the Iron trade are less willing to make contracts | been made during the week at \$48 to \$46 at mills, for future delivery than they were a few days and at a shade lower prices, it is probable, that In fact, the feeling is decidedly firmer, and it is not unlikely that the next few days tinued inquiries indicate a disposition on the may develop some important features arising part of several roads to become purchasers, from the recent changed condition of affairs.

fewer lots of hypothecated Iron being offered, and partly from the increasing belief that the is watched with snxicty, and while there are numerous circumstances which may tend to advance prices, there are none likely to materially reduce them. Fuel, labor, and possibly freights, important factors in the Iron trade, are in a very sensitive condition at the present moment, with all the chances in favor of higher rates, with an almost absolute impossiblty of a decline. The chief obstacle to any important advance is in the immense capacity for production, but this again is partly counterbalanced by the fact that any general resumption of work would, by causing an increased demand for fuel, freight and labor, increase their cost, and thus make a higher price for the product indispersable. Considerations of details would be a mere repetition of former this nature will no doubt prevent many furnaces being put into blast, unless the future seems more certain than at present. As an indication of the feeling in regard to this matter. we may mention the fact of one well known company inviting offers for their product of the whole of 1877 at a reduction of over \$1.50 per ton from late figures. Should the responses warrant their doing so they will put in blast one, two or more of their furnaces, which. for a considerable period, have been idle. We do not intend this to convey the idea that Iron is \$1.50 per ton lower, or any lower in fact, except in this particular instance. This company, which have usually obtained \$2 to \$2.50 more for their Iron than the average price, now express a willingness to bring their figures more of an extra quality at \$22. We quote the in accordance with the general market. What the result will be, or how it will affect other brands, remains to be seen. In the meantime sales are about the same as for the past month,

except that the Iron is not wanted. A reduction in prices seems to make no difference The demand is for small lots, and buyers will not increase their orders beyond immediate requirements. At present orders are about sufficient to keep one third of the mills running; some must, therefore, shut down, or being only partially employed, work at a great disad vantage. Inquiries have been more numerous the past few days, but for reasons previously stated manufacturers hesitate to enter forward contracts at present prices. The trade is in a most unsatisfactory condition, and although prices of Eastern Iron are moderately prosperity, will receive a new impetus, and its uniform, outside lots are brought into competition at rates which appear to indicate a determination to sell regardless of cost or card. An illustration of the way the Western card operations work came under our notice a day or two Immediately after the announcement had been made that the Western card was to be re- Clippings, 4%c.; Old Sheet Zinc, 4%c.; Yelstored to a 2c. base a prominent buyer in this city made a bid to a Pittsburgh mill more than 3c, under the base price, which was promptly accepted. Competition of this kind, of course, cannot be met, and the result is that Bars can be bought at almost any price that is offered. So far as our city brands are concerned, 2-1c. to 2.2c. are the ruling figures, and it is believed that these are the lowest at which a first class favorable terms to early purchasers. Some of

article can be produced. Plate and Tank Iron .- There is nothing over from last year's stocks to keep them to add to our late reports. The mills are all running until the Iron market becomes more

accustomed to, but it will be aliving for all who summer trade. We do not hear of any large \$6.75 is asked, with few if any sales; and the are willing to work, and to many it will, no transactions, but the demand is steady and con- magnetics are weak at \$6.50. The hematites doubt, be the foundation of future wealth. Not tinuous for small lots. We quote as about bot- are held at \$4.25 to \$4.50, according to quality, uly may we confidently expect labor and land tom prices for ordinary qualities: Ship Plate, with some sales at about these figures.

trade generally dull and insuimate. The mar- Foundry may be quoted cominally at \$23 to

Steel Rails .- The market is about in the same condition as last reported, with a light demand, and weak prices. There is no immeders made at unremuncrative prices. The if any anxiety is shown to secure additional business concessions will have to be made, interest. action of the mills : if they wait patiently orders will be forthcoming sufficient to keep them all ness and make themselves safe, is so great hands of those who are able to hold, and who some important orders could be secured. Conbut in the meantime the amount of new busi-Pig Iron continues about the same as ness entered is unimportant. A cheering fea last week; no change in prices and no increase ture of the trade is in the shipment this week in the demand. There is, perhaps, a shade to Rio Janeiro of 700 tons Steel Street Rails, steadier feeling, arising partly from the fact of These were manufactured by the Pennsylvania Steel Co., and are 45 lb. sections, hammered rails, and of very superior quality. We undercost of production has been reduced to a mini-mum. The condition of affairs in Europe, too, more than English rails could be bought for; the quality, however, is thought to more than cover the difference. There are inquiries from South American companies for Steel Rails for several prominent roads there, with a fair probability of business being secured, although in the meantime our prices are somewhat higher than English quotations. We quote \$48 to \$49 at mills as the nominal rate, with recent sales of small lots at these figures. Market quiet and week.

Iron Rails continue dull, and with but few transactions since our last report. There are the usual number of inquiries, but they are mainly from the same parties who have been in the market for several weeks past. To give reports. We may say, however, that some offers include a little more cash, but, as yet, no orders have been placed. We quote, \$33 to \$36 at mills, with sales in small lots at medium

Spikes .- There is about the usual move ment, and prices are nominally unchanged, although buyers in quantity could no doubt obtain concessions. We quote: Railway Spikes, \$2.25 to \$2.50, and Mining Spikes, 4 to 41/2 by 1/4, 28/4c.; 4 to 41/4 by 7-16, 3c.; 31/4 to 4 by

Old Rails .- The merket is quiet, but prices have been maintained, owing to the light offerings. Sales have been chiefly in 100 ton lots at from \$20.50 to \$21.50, with one sale market steady at \$20.50 to \$21.50.

Old Car Wheels are scarce; buyers are in the market at \$18 to \$18.50, and at \$29 for Old Car Axles. No sales are reported.

300 tons Common sold at 6c. to 61/4c., currency, but 5 90c, to 6c, would probably now be about a fair quotation. Manufactured is steady at 7%c. for Bar, 9c. for Pipe, and 9%c. for Sheet, less the usual discount of 10 per cent, to the

Shot .- Drop Shot, 25 lb. bags, 91/c.; do., 5 lb. bags, 101/c.; Buckshot, 25 lb. bags, 101/c.; and 1 lb. bars, 7%c., less 10 per cent. to the trade.

Old Metals .- Market steady at following Quotations: Heavy Old Copper, 17c. to Collins, Iron commission merchants, 217 North Third street, St. Louis, under date of Bottoms, 15c.; Heavy Red Brass, 14c.; Heavy Yellow Brass, 101/c.; Heavy Clean Pipe Lead, 51/c.; Junk Lead, 51/c.; Tea Lead, Light Paper, 514c.; Tea Lead, Heavy Paper, 5c.; New Zinc low Bruss Turnings, 9c. to 10%c.; Plumbers' Lead Joints, 61/4c.

CLEVELAND.

CLEVELAND, May 1st, 1877. Iron Ore .- The Lake Superior ores do not move off as rapidly as the ore companies expected, and there is a tendency to make more the furnacemen are buying small lots left

Pig Iron.-The market for Pig Iron does with higher prices according to quality.

Sheet Iron.—The demand is light, and the very small and prices are not firm. No. 1 ket brightens up occasionally, but the demand \$23.50, and mill at \$20 to \$21, according Irons are selling only moderately at \$22 to \$24.

Bar Iron and Nails -The trade in the inished products is unsettled, and the mills meeting of the Association, announced to be mote unity of action, is looked forward to with

Old Rails.-Considerable business has ately been done in Old Rails at about \$21, with the supply in excess of the demand. It may will not sell at a sacrifice.

BOSTON.

BOSTON.

APRIL 28.—Pig continues depressed, with no demand at all for future delivery, and a very small inquiry for spot lots. We quote \$23.50 (@ \$25 for No. 1, \$23 for No. 2 and \$22 to \$23 for Gray Forge. Scotch Pig is dull. We quote \$27 to \$30 for store lots. Bar is dull, quoting \$47 to \$43 for Refined, and \$38 to \$39 for Common. Nalls are in light demand, at the reduction. Copper is firm on the war news, and for large lots is quoted at 19½c. The home Brass manufacturers continue quite liberal purchasers. The foreign markets are still depressed. For Manufactured we quote: New Sheathing, 31c. to 32c.; Bolts and Braziers, 32c. to 32½c.; Yellow Metal Bolts, 26c. to 26½c.; ditto Sheathing, 21½c. Lead is steady at about unchanged prices. The prospect of a war in Europe has a tendency to stifien prices. We quote: Pig, 63½c. to 63½c., currency, for Domestic; Sheet, 9½c.; Pipe, 9c.; Tin Lined Pipe, 16½c.; Bar Lea1, 8½c., less usual trade or 10 per cent. discount. Antimony is quiet at 13c. to 13½c., gold, for Boston spot lots, and Spelter is easy, closing at \$6.50 on the spot for 10 ton lots. Tin is quiet, and prices rather tend downward. The heavy stocks abroad are the principal depressing influences. We quote: Straits, 17½c.; Banca, 19½c. to 20½c.; Refined English, 17c. to 17½c., gold. We quote Plates: Charcoal 1. C., \$7 to \$7.50; Coke, \$6.10 to \$6.25; and Terne at \$6.75 to \$7.25, gold.—Commercial Bulletin.

CINCINNATI.

Messrs. L. R. HULL & Co., under date of April 28, write us as follows: Pro Iron.—
The movement in Pig Iron has been very fair, and there has been no falling off in demand since our last report. The supply generally is ample, but there are some exceptions to this, the best brands of Charcoal Iron being especially light in supply. Prices have ruled shout. cually light in supply. Prices have ruled about the same. We quote:

Hanging Rock No. 1, Charcoal 22:50 @ 25:50—4 mos. Hanging Rock No. 2, Charcoal 22:50 @ 23:00—4 mos. No. 1, Coke... 24:00 @ 25:50—4 mos. No. 2, Charcoal 22:50 @ 23:00—4 mos. No. 2, 20:00 @ 21:00—4 mos. No. 2, 20:00 @ 21:00—4 mos. No. 1, Stone-coal 22:00 @ 23:00—4 mos. Virginia No. 1, Coke... 23:00 @ 24:00—4 mos. Virginia No. 1, Coke... 23:00 @ 24:00—4 mos. No. 2, 20:00 @ 25:50—4 mos. Ala. and Tenn, No. 1, Charc'l 22:50 @ 24:00—1 mos. No. 1, Stone-coal 25:00 @ 25:50—4 mos. Als. No. 1, 25:00 @ 25:50—4 mos. No. 1, 25:00 @ 25:50—4 mos. No. 1, 25:00 @ 25:50—4 mos. Alice No. 1, 25:00 @ 40:00—4 mos. Alice No. 1, Char-HOT-BLAST FOUNDRY.

23.00 @ 23.20 19.00 @ 21.00 MILL IRONS, No. 1 Charcoal, Cold-short and Neut'l. 20:00 @ 21:00 No. 1 Stonecoal and Coke, Cold-short No. 1 Stonecoal and Coke, Cold-short
and Neutral.

No. 2 Stonecoal and Coke, Cold short
and Neutral.

No. 1 Missouri and Indiana Red-short. 24-00 @ 24-50
White and Mottled, Cold-short and
Neutral.

CAR WHEEL AND MALLEABLE HRONS.

Hanging Rock, Cold-blast.

37.00 @ 40.00

ST. LOUIS.

April 26: Our market still continues quite dull. Demand is light, and prices remain about the same as last quoted:

	No. 1.	No. 2.	Mill.	Mot l'd
Missouri Stone Coal			\$55.00	\$21.00
Missouri Charcoal			22.00	20:00
Tennessee Charcoal Tenn. Coke, very soft	\$3.00	22.50	22.00	20.00
and strong	25.00	28:00	22:00	22.00
Hanging Rock Charcoal, H. R. Charcoal, Celd-	26 00	24:50	23:50	
short	Extra Extra		B.	****
	No. 1.	No. 1.	No. 1.	No. 2.
Alice H. R. Coke Quinnimont, West Vir	25.20		24.20	\$8.00
ginia, Coke	25.00	24.00	23.20	22.50

'00 @ 30'00 - 4 mos Assorted Bar Iron.... No. 1 Wrought Scrap. Heavy Cast

CHATTANOOGA.

Mr. S. B. Lowe, under date of April 30, re-report as follows: There is nothing new to note in Iron. Receipts have aggregated be-tween 600 and 700 tons, and shipments about 350 tons. Prices are about the same as last reported, with some inquiries for Red-short Iron.

COKE.
No. 1 Foundry \$21:50 @ \$2:00 No. 1 Foundry 20:00 @ \$1:01 No. 2 Foundry 18:00 @ 18:53 Gray Force 16:50 @ 17:00 White and Mottled 15:50 @ 16:00
HOT-BLAST CHARCOAL.
No. 1 Foundry, extra \$22.00 @ 23.00 No. 1 Foundry 20 00 @ 21.00 No. 2 Foundry 18.50 @ 19.50 Gray Forge 17.00 @ - White and Mottled 16.50 @ -
COLD-BLAST CHARCOAL.
Car Wheel Metal \$23.03 @ 28.00 " extra standard 30.00 @ 25.00 Forge Metal 18.90 @ 25.00 Muck Bar 31.00 @ 25.00 Old Car Wheels 17.50 @ - Olt Halls 16.50 @ 17.50 Brown Hematite Ore, 59 to 56 per cent, per ton \$2.00 @ 2.50 Red Fossilliterous Ore, 5) to 56 per \$2.00 @ 2.50
cent. per ton 1'80 @ 2'00

BALTIMORE.

Messrs. Wyeth & Brother, Iron and Steel merchants, 46 and 48 South Charles street, report us the following prices, under date of April 30: Trade has ruled moderately fair for the past week, with increased inquiry for supplying early wants at close quotation figures.

AMERICAN REFINED BAR IRON.

1 to 6 wide by 3½ to 1 thick... 2 15 to 2½ c. 20 lb.

1 to 4½ wide by 1½ to 2 thick ... 2 15 to 2½ c. 20 lb.

Round and square, ordinary sizes, from 3½ to 2 luclusive... 2 15 to 2½ c. 30 lb.

Hoop Iron, 1½ wide and upward... 3½ to 3½ c. 30 lb.

Horse Shoe Iron 1½ to 4 lh. wide... 3 to 3½ c. 30 lb.

Horse Shoe Iron 3½ to 1 wide by 3½ to 4½ thick... 3½ to 4c. 40 lb.

Norway Nail Rods... 6 to 6½ c. 30 lb.

Black Diamond Cast Steel. Flats, Squares and Octagon, ordinary sizes... 14½ to 15 c. 40 lb.

Kachmery Steel... 85 to 9c. 40 lb.

Cast Spring Steel... 7½ to 8c. 41 lb.

Homogeneous Steel Plate... 8½ to 9c. 41 lb.

Homogeneous Steel Plate... 8½ to 9c. AMERICAN REFINED BAR IRON. Cast Spring Steel. 7½ to 8t Homogeneous Steel Plate. 8½ to 9c. Perkins' Horse Shoes, per keg of 100 lbs. 4t Mule Shoes Mule Shoes 4 492/5 R. R. Spikes 2% to 3c. Coramon Horse Nails, from 14c. to 18c. per pound. 10 9 8 7 6 Putnam Horse Nails 23 24 25 26 28c. per 7b. Globe Horse Nails ... 23 24 25 26 28c. per 7b.

Messrs. R. C. HOFFMAN & Co., Iron and commission merchants, No. 23 South Frederick street, report the Pig Iron market as follows, under date of April 30: The Iron market re-mains quiet, and prices unchanged. We quote:

Baltimore Charcoal
Virginia "
Anthracite No. 1.
" No. 2.
" No. 3.
White and Mottled

RICHMOND.

Mr. Asa Snyder, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of April 30: About 300 tons White (Charcoat) Pig Iron has been sold on private terms, but below quotations. The market remains firm at quotations for the softer grades, and as these saies of White leave no more of that number in stock, the quotation for all numbers may stand.

FOREIGN.

FRANCE. (Moniteur des Interets Materiels).

sales are about the same as for the past month, chiefly is small loss, at prices ranging from \$19 to \$19 50 for No. 1, \$18 for No. 2, and \$17 50 to \$19 50 for No. 1, \$18 for No. 2, and \$17 50 for Gray Forge, with special transactions at higher and lewer figures.

Biooms.—The demand for Cold-blast Charcoal Blooms is more active, and with light stocks prices are a shade higher. We quote Sunken Scrap Blooms (3464 lbs.), \$43 to \$45; No. 1, \$100 cells and the same as for the market is still in an unsettled Sunken Scrap Blooms (3464 lbs.), \$43 to \$45; No. 1, \$100 cells and \$100 cells and the same as for the demand is a still langual and a stocks prices are a shade higher. We quote Sunken Scrap Blooms (3464 lbs.), \$43 to \$45; No. 1, \$100 cells and \$100 cells and the same as last week. Stocks prices are a shade higher. We quote being the nominal quotation.

**Northern Ore Blooms (2346) lbs.), \$45 to \$67; Cold-blast Charcoal Plate Blooms, \$800 to \$67:50; Sheet Iron Blooms, cornered (2444 lbs.), \$65 to \$67; Cold-blast Charcoal Plate Blooms, \$800 to \$62:50; run out Anthracite, \$50 to \$57:50; Sheet Iron Blooms, cornered (2444 lbs.), \$65 to \$67; Cold-blast Charcoal Plate Blooms (3464 lbs.), \$65 to \$67; Cold-blast Charcoal Plate Blooms, \$800 to \$62:50; run out Anthracite, \$500 to \$72:50; cool charcoal Leaded, \$13:50 to \$81:250 to \$50:250.

Bars.—The demand for Cold-blast Charcoal Plate Blooms (3464 lbs.), \$65 to \$67; Cold-blast Charcoal Plate Blooms, \$800 to \$60:250; run out Anthracite, \$500 to \$72:50; run out Anthracite, \$700 to them. We are 2% francs lower here, and quote as follows: Banca, 192-50; Straits and Billiton, 193; Australian, 187-50, and English Refined, 180-50. Marseilles is steady; they quote, nominally, Banca, 195 to 200 francs; Straits and Billiton, 194-50 to 195, and Refined English, 200. Lead—In spite of a fresh darchne in England of 3/ to 7/6 per ton, our markets have become steadher in view of the warlike outlook, and at all events bottom is touched; perhaps an important improvement may be impending. French is firmly upheld at 5250 francs the 10x kilos, and Foreign is sustained at 52. Havre still quotes 55-30 to 54 francs. No alteration at Marseilles, Spelter.—Nothing of special interest can be reported with reference to this metal; so close upon the building season it seems to us worthy of attention at prevailing reasonable rates. We do not set that war can do it any harm. We quote Silesian, 51-50 to 54-75; Havre is quiet at 53 to 53-54. Marseilles is quiet at 51 for Old Remeited; Sheet Zinc there. 70 to 77 francs the 100 kilos. Fon.—It is prefty generally admitted that the Iron situation in France has, if anything, improved, orders dropping in in Increased quantities, although they are not large. Yet prices fail to resume greater firmness, which shows that makers are but too glad to avail themselves of the greater activity observable in order to diminish stocks on hand, and that they do not yet look into the future with confidence. First quality Merchant Iron in this city continues to command 180 to 185; Iron Flooring Sheets. 180 to 185; three millimeter Sheet, 285, and Swedish M. B., 540. In the Haute-Marne the stock of Pig Iron is on the increase in a rather striking manner; rolled Iron and machinery are doing well there, furthermore axies. Foundries and locksmiths are busier. In the Meurthe and Moselle, affinage Pig is weak at 61 to 61-50 at Naucy; 61 to 62 at Longwy; Pig Iron second pressure is worth 80 to 83 trancs No. 3; Merchant Iron, 170 to 180. The tendency is a weak one in the department of the Rhone, bu White

BELGIEM.

BELGIUM.

(Revue Universelle).

BRUSBELS, April 15, 1877.—Iron.—Prices are still as low as ever, but there is a slightly improved tendency toward greater activity. The dealings of the week have indeed been larger than has been the case for some time past, especially in Tiron and merchant Iron, but it will take some time ere all the works in Belgium are fully occupied, and can pretend to make the law to consumers. When that

precise moment shall have arrived they may look for higher prices. Attempts are still made by producers at lowering wages, often with success, but sometimes the operatives resist. An instance of the latter kind his just occurred at the Zone Rolling Mills, where 300 operatives have abandoned work, declining to accept a reduction of 5 per cent. on their wages; but it seems that a compromise is about to be made. Pig Iron at Charlerol is held at 520 francs, and No. 1 Iron at 13-75. At the metal exchange in this citr, on Wednesday last, Sheet Iron has suffered a decline, and thick sheets can now be had at 19 francs. The purchases made were for immediate consumption; at present prices producers just cover expenses. It was very much hoped that the critics on Iron in France would be reduced, especially the one on merchant from and Rails, now paying 6 francs the 100 kilos. It was expected that this duty would have been lowered to 5 francs; the government, however, is not in favor of any modification, and unless the Chambers of Commerce exercise some pressure for a reduction there will be no change. Coal.—There was some more activity early in the week, but finally the market has relapsed into quietude. Prices are weak, and mixed is selling at 18-30 francs.

GERMANY.

(Boreenhade.)

Hamburg. April 15. 1877.—Metals.—An attempt has been made by some frommasters to smuggle into the Imperial Legislature a modification in the duty on Iron, etc., by reimposing some shight dues, but this scheme seems to have little chance of success, at least not at this early stage, when the removal of the dutice has hardly had any chance of being practically tested. Copper.—Transactions have been quite restricted during the week, prices remaining as heretofore quoted. At Berlin the market is remarkably quiet, and the same relates to Stettin and our own. Here, on firm orders, larger lots would have been obtainable at some shading in prices. Thomas with a large lot of old Copper not yet sold. Tin.—The German markets in general are quite weak, and although prices have not varied, there would be willing sellers at a slight decline. Lead.—Our markets are in an expectant attitude. So far they have been quiet, but toward the close orders are dropping in. Holders, however, show very little melination to make any sales whatever, the warlike aspect in the East cassing them to look forward to an important advance in prices. Speller.—Absontely nothing has occurred in this metal. There is no change in prices.

HOLLAND.

HOLLAND.

(Kock & Vierboom)

ROTTERDAM, April & Vierboom)

ROTTERDAM, April & Vierboom)

Rotterdam, April & Vierboom)

Rotterdam, April & Vierboom, The marke' remuns very quiet. Immediately available lots are held at a comparatively high price, there being but few sellers; but, on the other hand, consumers are operating with the utmost caution, and do not extend their purchases beyond the most urgent requirements. We quote: Banca, on the spot, 42½ guilders, Billiton, on the spot, 44 to 42½; and to be delivered in May or June, 41½ guilders. The auction sale of 10,000 pienis Billiton at Batavia, which came off on the 9th instant, having averaged 46-42 guilders per pieul, this is equal to 42 guilders per 50 kilos, laid down here.

EAST INDIES. (Gilfillan, Wood & Co.)

Gitfillan, Wood & Co.)

SINGAPORE, March 16, 1877.—Tin has been in good demand for America, and the dollar price has risen with every fall in exchange. Buyers offer freely \$20.70 per pical without finding sellers. Very Little business is being done for England. Tonnage.—The cargo of the Hera, for New York, consisted of 1849 picula Tin, and that of the Kolga, for same port, of 123 piculs of Tin. There remain on the berth the Molike, for Boston, and the Star of the East, for New York. Exchange has recently had a heavy fall, and after some irregularities, closes at 4/1% per \$ for first-class credits, 6 months' sight.

AUSTRALIA. (Mining News.)

PORT ADELAIDE, Feb. 24, 1877.—Conper.—The smelting operations, both here and at Newcastle, are proceeding satisfactorily. Since our last report further shipments of 200 tons Copper have been

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) SHEFFIELD, Eng., April 16, 1877. THE SITUATION

at the time of writing is much more alarming than at any previous juncture of this troublesome Eastern question, and so far as can now be seen by outside observers, there is but the barest possibility of peace being preserved. For many months we have had, first, the hot wind of war and then the cool wind of peace blowing over us in rapid alternations, until at length we had made up our minds to disregard both. we had made up our minds to disregard both. Just as this became our fixed idea we heard rumblings afar off, and now there comes upon us every hour statements relating to the marching of armed men and the busy plotting and counter-piotting of little minded diplomatists. For anything that we know, Russia and Turkey may be fighting by the time these lines appear in print, and by this day twelve months a great part of Europe may be involved in the issues thus raised. War is a demon of the worst kind, and when let loose raises most infernal riot. In the interval, and pending immediate developments, developments,

TRADE IS STATIONARY,

and in many branches a most hopeless feeling At the current corn markets price prevalls. At the current corn markets prices are rapidly running up, in sympathy with your and the continental quotations. People are, and for some time past have been, bewildered by the tortuous course of foreign politics, and although they have waited for something definite with much anxiety, they are now depressed by the apparent certainty of war. It is felt on all hands that Mr. Roebuck struck the keynote last week when he declared it to be imkeynote last week when he declared it to be imkeynote last week when he declared it to be impossible for this country to allow Russia to hold Constantinople. Such being the case, it is seen that it is only a matter of time for Great Britain and Austria to be involved, and then who shall say where the flame shall be extinguished. Certain it is that the existing state of things is most prejudicial to our commercial interests, and that many persons would rather have war than continued uncertainty.

"A LESSON ON PREE TRADE"

is laid down by the London Grocer (the repre

is laid down by the London Grocer (the representative organ of the trade) of April 14th, on the subject of Messrs. Finzel & Co.'s failure—to which I alluded last week, as being for over £600,000. Saith the Grocer:

"In the brief extract that accompanied the announcement of the failure of Messrs. Finzel & Sons, sugar refiners, of Bristol, in our last issue, it was stated that their trade had been 'ruined by the French Bounty System.' We purposely revert to the statement to add that bumbers of other refiners have year after year. purposely revert to the statement to add that numbers of other refiners have year after year, since 1860, succumbed to the same fate, only that so long as the ruin was confined to the port of London it evoked no sympathetic feeling. Out of twenty-five refiners in this great city in 1856, there remain now few more than six, and even these are not in full working order. If anyone asks the cause, we point to the French system of giving bounties, superadded to the reduction and final abolition of the duty on reflued sugar imported here. The free trade mania of Mr. Gladstone in or about

1800 has proved to have been a gross infatua-tion so far as sugar has been concerned, and the principles which have guided the counsels of every successive government since have been carried beyond the bounds of reason and equity. of every successive government since have been carried beyond the bounds of reason and equity. In short, as a free trade country, we have overshot the mark in legislating for sugar; hence the ruin of many of our refiners, and the extinction of others. Finzel's failure is a case in point, and occurring in Bristol Instead of at London may open the eyes of some of our free trade advocates to the danger of patronizing the foreign producers at the expense of their English rival. Time after time we have predicted what would be the result of this one-sided policy of giving too much to the foreigner for the sake of an 'idea,' and only last week, in speaking of the 'New Sugar Convention,' we pointed to 'the shadowy form of protection' contained in Article 8, which might 'carry comfort to many a half-ruined man on this side the channel,' as it is the only way out of our pre-ent disasters in the sugar refining trade.'' After reading this one naturally asks whether this is the only industry ruined by 'free trade mania.'

THE CABLING TARIFF

is again to be raised on May 1st to the old price of three shillings a word, the Angle Company, at all events, having soon tired of benefiting the public at a shilling a word.

THE GREAT LIVERPOOL COMPANIES

are evidently being severely hit by the depression of trade, masmuch as four of them—the White Star, Iuman, Guion and National lines—bave decided to decrease their sailings—by one-half for a period of three months, so that their vessels will run every fortnight—only, instead of each week.

THE ORDER FOR COTTON TIES.

THE ORDER FOR COTTON TIES, announced by you to be for 24,000 tons, and to have been secured by English firms, is contradicted by a correspondent balling from Wolverhampton, which some shamelessly allege to be in "central England." This obliging gentleman, seeing your announcement most widely copied by the English press, is at the trouble, some days afterward, to send out a paragraph saying that the quantity is only 4000 tons, and that the order is divided between the Chillington Company, the Whelock Company, the Pelssill Company and Maybury & Co. He says nothing about Messrs. Heath, whom I mentioned last week. It is, of course, most probable that this gentlemen must be accurate; still I should like to hear what you have to say on the matter, as you had no apparent interest to serve in making the announcement, which I took to be of vital importance.

THE MARCH EXPORTS

THE MARCH EXPORTS

again show to a disadvantage, the total value having been £16,926,930, as compared with £17,739,101 in March, 1876. Iron and steel, nevertheless, show an increase of 16 per cent, in quantity and 4½ per cent, in value. Of pig iron we exported 67,788 tons; bars, angles, &c., 22,590 tons; railroad fron, 30,678 tons; iron or steel wire, 408 tons; hoops, sheets, &c., 14,161 tons; inn plates, 12,783 tons; cast or wrought fron, 20,103 tons; old fron, 1678 tons; unwrought steel, 684 tons; pig, &c., lead, 3055 tons; unwrought copper, 21,623 cwts; wrought copper, 21,623 cwts; wrought copper, 21,633 cwts; the graph apparatus and wires, value, £65,549; plated wares, £14,111; and coal, 1,600,700 tons. The chief figures, in detail, are these:

Machinery and Millwork—Steam Engines.

Machinery and Millwork-Steam Engines.

	1875.	1876.	1877.
For March.	£	£	£
To Russia	8,518	921	3,900
Germany	25,336	4.687	4,502
France	5,069	2,346	4,467
Spain and Canaries	4.637	2,620	8,409
Italy	13.070	2,987	21,345
Egypt	2,733	988	307
Brazil	1.794	1,820	8.028
British India	22,780	28,419	14,370
Australia	19,133	12,563	40,734
Other countries	117,457	61,551	84,809
		0.1000	04,000
Total	221,127	118,401	185,871
Other Descript	tions of L	Machinery.	
	1875.	1876.	1877.
For March.	£	£	£
To Russia	28,891	8,262	3,134
Germany	58,9:6	68,147	41,735
Holland	25,369	27,715	18,061
Belgium	33,402	22,983	90,484
France	47,459	61.537	41,288
Spain and Canaries	14,243	24,070	21,786
Egypt	4,822	5,416	2,090
United States	19,650	95,101	13,790
British India	146,852	59,514	76.030
Australia	30,672	24,412	20,268
Other countries	116,622	106,378	80,475
Total	526,888	431,585	239,141
Hardwar	e and Cu	tlery.	
	1875.	1876.	1877.
For March.	£	£	£
To Russia	1,214	1.470	555
Germany	22,431	24,744	17.634
Holland	8.070	8,210	8,260
France	12,708	11,551	12,616
Spain and Canaries	6,613	9,545	9 248
United States	60,066	41,479	28,166
Spanish West India		,	20,200
Islands	6,236	7,463	3,442
Brazil	27,134	24,319	20,921
Argentine Republic	9,028	6.418	499
British North America	25,556	14,181	15,081
British India	24.598	22,576	81,985
Australia	58,441	55,682	51,639
Other countries	94,384	97,902	78,510
Total	354,476	825,540	278,676
The following is the	special		
and steel rails, which	again b	OWOTON OF	nmot be
and steel rans, which	again, n	owever, ca	mnor oe

absolutely guaranteed as to accuracy of each ta-ble, although the total is correct; thus:

TRON AND STEEL RAILS.

Exports of Iron and Steel Rails in the month ending March 31, 1877, and in the three months ended March 31, 1877, compared with the exports of the corresponding periods of 1876.

Quantities

18,728 26,455 54,545 59,196

	Month Marc		ene	months ded ch 31.
IBON RAILS.	1876.	1877.	1876.	1877.
To	Tons.	Tone.	Tons.	Tons.
Russia	734	1.098	734	1.698
Sweden and Norway	3,942	753	8,401	854
Germany	11		11	66
Spain	309	1,119	2,448	2,207
Italy	2,634	401	8,473	999
United States	******			332
Brazil	851	1,321	3,615	5.718
Chili		25	88	
Briti h North America.	1	***	1.515	00
British India	4,646	3,428	9,461	5,843
Australia	1.850	2,912	5,264	6,285
Other countries	864	3.991	6.582	6,928
other countries	901	3 201	0,002	6,948
Total	15,852	14,378	46,592	80,885
STEEL RAILS.				
Russia Sweden and Norway		2.231		6.089
Sweden and Norway	254		401	886
Jermany		245		402
Spain		593		3,345
Italy		61		51
United States		262		262
Brazil		337		337
Chill	460	429	462	429
British North America,	311	20.	429	802
British India	808	5,032	704	7,960
Australia	14	2,580	1.201	5,221
Other countries	1.534	317	4,756	2,957
remore commencements	1,001	014	B, 100	4,000
Total	2,876	12,077	7,953	28,741
a 1/0m1	*,010	14,011	1,000	40,191
Total of iron and steel				
rails	18 798	96.455	R4 K48	50 196

	Value.					
	Month Marc	ended	Three r end Marc	ed		
	1876.	1877.	1876.	1876.		
TO TO	£	£	£	£		
Russia	7.611	9.878	7.011	9.878		
Sweden and Norway.	27,986	4.154	61,553	4,754		
Germany	95	9,109	95	433		
Spain	1,940	6.820	18.157	18,48		
Italy	18,439	2,628	60,320	7.096		
United States		2,020		2.04		
Brazil	5,945	8,549	25,513	36,569		
Chili	90	165	702	383		
British North America.		100	15,566	00		
British India	83,775	21.155	74.189	85,670		
Australia	14,304	18,770	40,782	41.19		
Other countries	7,311	20,434	53,978	40,02		
Other countries	14011	20,434	99,910	40,02		
Total	116,895	99.859	358,866	196.53		
		0000	- COUNTY COUNTY	a in the sail		
STEEL RAILS.	1					
To						
Russia		22,685		56,95		
Sweden and Norway	2,488		8,885	7,590		
Germany		2,427		3,97		
Spain		5,337		29,91		
Italy		430		4:3		
United States		1,837		1,83		
Brazil		3,033		3,03		
Chili	4.121	8,431	4,146	3,43		
British North America.	3,496		4,816	6,92		
British India		38,568	9,259	62,83		
Australia	151	23,983	12,276	48,82		
Other countries	13,970	2,741	44,944	26,16		
Total	27,062	103,873	79,325	251,92		

SCOTCH PIG IRON

has remained quiet on the week, although the tendency of politics has almost reduced matters once or twice to the verge of a slight panic. There are now only 110 furnaces blowing, a fact which to some extent accounts for the decrease of 365 tons from the stores held by Messrs. Connal during the week, their stock being now 128,734 tons. Writing on April 10th William Coivin & Co. (Glasgow), reported no change, either in warrants or makers' brands. Writing on April 13th James Watson & Co. said: "The Sected pig iron market has been comparatively steady this week from 53/9 to 54/, cash, with a limited business doing owing to the uncertainty regarding the political situation in the East, the close this afternoon being nominally 53/9, cash. Shipments last week were 9071 tons, against 8550 tons in the corresponding week of 1876."

			No. 1.	No. 3.
G. M. B., at	Glasgov	V	 55/3	62/
Gartsherrie,	46		 61/6	54/3
Coltness,	46		 65/	54/9
Summeriee,	0.6		 60/	53/6
Langloan,	46			55/
Carpbroe,	44		 56 6	58 6
Caider, at Pe	ort Dun	ias	 60 6	53/6
Glengarnock	, at Arc			51/6
Eginton,	69			52 6
Daimellingto	PIII			53/
Shotte, at Lo	ith		 61/6	55 6
Kinneil at	DO TIERS		 56 6	58/

In the Bessemer and steel rall departments all the newer establishments are doing a large turnover, much of it being on account of the leading home companies. Russian contracts, however, are the mainstay of one concern, an order of this kind for about 17,000 tons being about to be executed in time for the opening up of the Baltie navigation. Prices are rather quiet, and it is stated that £6. 10/ is hardly the lowest figure which has of late been quoted in competition for certain contracts here and abroad. There is a moderately good inquiry for English spiegeleisen, in the manufacture of which three firms are engaged here. Prices quiet, and it is stated that £6. 10/ is hardly the dompetition for certain contracts here and abroad. There is a moderately good inquiry which three firms are engaged here. Prices for many are come down to the extent of 10/ to 12/6 per ten in the course of the last few weeks, and a good article with 20 to 30 per cent. of manyanese can be had at £6. 5/ to 25. 15/ per tou. German is neglected, although quoted at £4. 5/ f. o. b. Rotterdam or other continental port.

There is a decided improvement in the any for steel ship plates, and it is how to be expected in the continental port.

There is a decided improvement in the any for steel ship plates, and it is how to be expected.

bly busy, and machinery also is in good request for the same warket. Australian orders for general hardwares are limited, but those

classes of ship ironwork will presently be replaced by steel, which certainly appears to be the better material in all respects, and can now be produced at prices on greatly out of produced at prices on greatly out of produced at prices on greatly out of produced and and one be produced at prices on greatly out of produced in the armor plate forges, mills and shops there is some work in hand, but not that amount of activity which is represented in certain trade reports emanding from this town. The experiments of Messrs, Cammell back will be availed fere with much interest, use in that their success or failure will to a great extent deedle the future—at all events the immediate future—of this important branch of local mutarty. As is well known, the outgoing the face of the bad condition of the iron and color railway spranse, buffers and other similar goods, is only limited just now, and in the face of the bad condition of the iron and color trades it is difficult to see how carriage and wagon building can be continued on the face of the bad condition of the iron and variation of the bad condition of the iron and variation of the founding safe to the submitted for a present.

The cast steel trade remains in a quiet condition of the founding safe to the submitted for a present.

The cast steel trade remains in a quiet condition of the founding safe to the in the market for several thousand tous. The demand is also better in France, and last year they exceeded the previous year's make by 10,000 tons. To Plates—The demand is unimproved, and several of the works have reduced their make. Quotations are still low, but concessions upon current prices have to be made for quantities."

Messrs. Kelly & Co., once more hold forth in this wise: "The metal market acknowledges.

before a feet plantage.

Similar of the control of

fully one-half soft wood charcoal, and it is said "the furnace had no assistance in the work except good machinery and the best of management." The average for the week was over 43 tons daily. This is surely an immense yield; and all conditions being equal, we think this furnace is fairly entitled to the broom. We must suspend judgment, however, until we have time to make full comparisons. Below are the full figures as furnished us by the Superintendent, Mr. C. Sprong:

Measurement of Stack.

Two 14-inch flue borlers, 40 inches by 24 feet

Machinery Measurements

Size of engine, 18x28.
Size of blowing cylinders, 48x60.
Average speed of steam engine por minute, 57
yeolutions. Average revolution of blowing cylinders per minrage pressure of steam, 65 pounds

Report for Week Ending April 21, 1877.

9013 The above figures do not include 2397 pounds of furnace castings made during the Quality of Iron.

59 83 83 Materials Used.875,885 pounds.216,715 ''55,880 ''31,925 bushels. Average Results. Pounds of ore used per ton of iron... Pounds of lime used per ton of iron. Bushels of coal used per ton of iron. Yield of ore. re of oven (degrees Fahre Kinds of Coal.

Bushels of mixed coal.
Bushels of pine, hemiock and black ash coal from home kilns. The temperature of oven, pressure of blast nd speed of engines were recorded every eight

hours.
The Menominee Herald, in speaking of this matter, says: It is just possible that interested parties who are not acquainted with the character of the officers of our furnace might character of the officers of our furnace might claim that the report was 'doctored,' but in order to prevent anything of that kind, the fig-ures of the entire blast are given below. That it was not a 'spurt' is farther proved by the fact that this week's average has been over 41 tons. For all of these products railroad ship-ping receipts have been received, and can be seen at the office of the company in this place, or at A. B. Meeker & Co.'s office, Chicago.

Product of Blast per Week.
 First week of blast.
 215 tons

 Second week of blast.
 219 "

 Third week of blast.
 235 "

 Fourth week of blast.
 251% "

(From the Engineering and Mining Journal of

The Rules of the Institute.

The Iron Age did much more than newspapers usually do to atone for its savage and baseless attack on the managment of the Institute of Mining Engineers. Having sent a copy of that article to each member and associate of the Institute, it mailed to the same persons, subsequently, special copies of its retraction. This was, indeed, no more than fair; but fairness is sometimes heroic. We trust this eminent virtue still abides with The Iron Age, for we are obliged to appeal to it again.

The Iron Age now criticizes the objects of the Institute, the means by which they are carried out under the rules, and the manner in which the means themselves are administered. The latter point is made with due caution; for this is the ground which proved slippery before. We shall dispose of it first, simply to clear the way for a consideration of the other.

It is charged that the author of a paper does not always receive the twelve copies of it to which he is cutitled by the rules. This is quite true; if he does not want them, he may not get them. "We know of more than one instance -to adopt a frequent phrase from The Iron Age, which we suppose means two instances which authors have not cared to receive their twelve copies, having made other arrangements for separate publication. If The Iron Age means, however, that authors sometimes desire these copies, apply for them, and fail to receive them, we can only reply that we are not aware of any such case, and do not believe it has occurred.

It is charged that a member, with an accepted paper to read, once sat through a whole session waiting for his turn, in vain; that the paper was subsequently read by title, and never is, the volume so named-with the " Proceedpublication in this Journal. As for the woes turn ?" of gentlemen who sit through "a whole session" waiting for their turn, they are among the mevitable annoyances of all such gatherings. The Institute holds four or five sessions during each meeting. Many of the members arrive with papers, perhaps not announced in advance, or so announced as not to give accurate knowledge of their length. Nearly all of them have they wish to read their papers. One must leave by a certain train; another wishes to be heard while certain experts are present, who cannot stay long; another needs an evening sestime to put tables of figures on the blackboard; and so on. The Council does its best to harmonize these interests and suit everybody, while giving some preference to papers which will arouse profitable debate. The programme is placed in the hands of the presiding officer, and he endeavors to carry it out. But suddenly a debate arises, not down on the bills, yet full of interest. The chairman lets it go on seldom, if ever, exercised its "arbitrary as long as he cares, and reluctantly cuts it short Two such occurrences in one session who was last on the programme for the day. Gentlemen usually recognize the difficulties that environ the presiding officer in this matter, and take their disappointment good-naturedly. That prising enough. Moreover, it does not seem debute are omitted from them. This is done furnace is opposed to any material change in

to see that the rules are framed to prevent this annoyance as far as practicable. If business and discussions could be indefinitely continued, according to ordinary parliamentary law, as long as the assembly chose, many members would have to wait in vain who are now rescued by the authoritative voice of the chairman putting an end to the consumption of the time assigned to them. The only other course destroy debate, and give to the proceedings that cut-and-dried tone which has been a recognized evil in many other societies.

It is charged that papers read at the meet ngs are sometimes suppressed from publication altogether. If this means that papers furnished by the authors for publication are suppressed, it is not true. If it means that by the fault or at the desire of the authors papers are occasionally withheld from publication, it s a statement as true as it is trivial.

So much for the abuses of administration. The indictment is not a serious one. Such grievances might furnish matter for a complaining letter to the secretary, and for such explanation and remedy as could be offered. Paraded "in the interest of the public," they make a sorry figure. The Iron Age having taken in hand a great reform, ought to disdain these small pickings by the way; and the "more than member, who prefer to "reform" the Institute by getting somebody to attack it from the outside, would work to more advantage of they took the same position.

But The Iron Age lays most weight upon the Rules. It finds the objects of the Institute objectionable, and its Rules unjust and unsatisfactory. It seems to think that these regulations have been cupningly devised, on a radically new plan so as to restrict the rights of members, and create (for some ill purpose not named) a monster corporation of tyranny.

As to the objects of the Institute, they are ot likely to be changed. The safety of such a ociety, administered by "arbitrary authority," lies in narrowing its objects, and rigidly adhering to them. If The Iron Age thinks the purpose should be "treble" what it is, we beg leave to assure it that the present plan requires Steel Institute exactly what it gets from hard work enough, and all the money which the Institute of Mining Engineers—the privthe Institute can command. Moreover, in view of the fact that the Institute has been successful, while other societies with much wider and more numerous purposes have "gone to pieces," we must say that we prefer not to ommence tinkering at the foundations of the building, lest they might turn out to have all the papers intended to be offered at any something to do with its stability. The Iron Age, sagely criticising from a safe distance, may advise many things; but the folks that live in the house, you know, are just a little disinclined to pry out the corner stone.

But the upper stories are, of course, more casily altered. And of these, Rule VII, it appears, needs overhauling badly. By this rule, the Council has power over the reading and publication of papers, and the copyright of all wise agreed between the Council and the author.

At this point, we beg leave to say to The Iron Age that the rules of the Institute were originally copied from those of the North of England Institute of Mining Engineers, one of the oldest and most successful societies of the kind. Changes have been made to suit the peculiar circumstances of a widely scattered membership; but the feature to which The Iron Age objects is not changed. It is, moreover, almost invariably the rule with such societies.

The management of such a body by its Council has been found far better than the reference of business matters at every meeting of the whole body. The perils of "arbitrary authority" are less than the nuisance of wasted time and 'patience over matters of detail. The Iron Age thinks that a member whose paper has been refused should have the right of appeal to the whole body Pray, what could the whole body do but hear the paper in order to decide whether it was properly referred? And if the Council elso must be heard, and all the reasons of reappeared in the Transactions. The Iron Age fusal given, is not the last state of that man may here confound the "Transactions"—that he liked it, what would be its effect on the ings," which is the term usually given to the members who were patiently "wating for their

point. The Institute imposes no sure conditions of membership. It does not inquire whether a candidate is a skillful and experienced engineer. Its associates need have no other qualifications than respectable character and a desire to share its benefits. Members and associates alike may write papers. decided preferences as to the session at which There is absolutely no barrier against flooding the meetings with valueless, crazy, or inappropriate papers, except the discretionary power of the Council. Moreover, the "reading" of papers, as The Iron Age should know, is often sion to show his lautern views ; another wants a mere oral statement. Frequently the Council can only judge in advance by the account or abstract which the author gives. It may hap pen that upon hearing the public state the great mass of it is plainly seen to be inappropriate to the Transactions. We know of no case in which the author himself has not assented to the suggestion that the publication should be made elsewhere. The Council has thority" to suppress a paper. If The Iron Age York States meet, will nearly comprise the ore has heard of one or " more than one," we chalare very likely to exclude some patient waiter lenge it to print the papers, and we will promise to make of them monumental illustrations of the wisdom of Rule VII.

Beside the printing of the proceedings in the any gentleman ever carried a grievance of this publishes volumes of Transactions. The first blast furnaces built in this country, their kind to The Iron Age, we should be sorry to of these comprised two years; the other three, believe. That The Iron Age should listen to it a single year each. These volumes are care- pattern and design. This is almost necessarily and give it the dignity of leaded type, is sur- fully edited; sometimes papers and remarks in so. The successful and busy run of a blast

with the assent or at the desire of the authors, Mere speeches of welcome, &c., when they do not contain matter of permanent professional value, are omitted. From the first volume some papers of real value were left out, simply because the size of the volume was limited by the money in the treasury. Since that time the bank, the brow of which is close to and nearly funds have been sufficient for a full publication a level with the tunnel head, to which the tion. It is to this contingency, however, that would be to fix the time for each paper in advance—which would break up the audience, enable the Council to print what it can in book form. But it has never been employed, so far as we know, against the wish of any author. If The Iron Age knows to the contrary, let it produce the rejected paper. The writer of the present article enjoys the proud distinction of having had more of his productions left out of the Transactionst ban anybody else; but he hastens to assure the Council that he knows better than to complain, and that he will never. no, never, ventilate his grief in The Iron Age

But the copyright is vested in the Institute Indeed! Well, it must be vested somewhere. mustn't it? And if the Institute prints. the paper, it must hold the copyright, or else nobody can, not even the author. But what need an author do if he does not like this arrangement, but "otherwise agree" with the Council, according to the rule? As not a single paper has ever been copyrighted, all this agony about a hypothetical case seems somewhat ab surd. The Iron Age has copied from our columns too many papers not to be aware that, by general consent of authors and Council, the copyright is entirely thrown open to the pub-The right to control it exists, but is not used. There is at present no restriction whatever upon "additional" publication, except that the author cannot buy copies of the Institute at the cost of paper and printing in order to sell them.

The Iron Age has received official printed copies of the papers of the Iron and Steel Iustitute of Great Britain, which it is free to reprint; and this example is held up to us. But all the members of that body, and all the newspapers, and anybody that chooses to subscribe have received these copies also. Hence, The Iron Age gets from the Iron and ilege of reprinting its official publications, ofter the members have received them, and in common with every other journal that wishes the same privilege. The fact that the official publication precedes the meeting in one case, and follows it in the other, does not alter the matter. If meeting of the Institute of Mining Engineers were published before the meeting in our columns, and The Iron Age were just as free to copy them as it is now, would it be satisfied? Not at all; what it desires is to print the papers in full before their official publication-a thing which it cannot have from any society in the world which makes such publications at all.

We beg to call the attention of The Iron Age to the rules of the Iron and Steel Institute of papers is vested in the Institute, unless other- Great Britain, which it undertakes to praise without having read them. Section VII of those rules is as follows:

"23.-All communications shall be submitted to the Council, and, after their approval, shall be read at the general meetings,

"24 .- All communications made to the Institute shall be the property of the Society, and shall be published only in the Transactions of the Institute, or by the authority of the Coun-

It would be interesting to have the views of The Iron Age on this "unjust and unsatisfactory" arrangement, and since the British society, which it brought forward as a model, thus disgracefully fails to come up to its description, we "wait our turn" with patient curiosity to see what other society The Iron Age will honor by a hasty selection. It will probably wish next time to read the rules of its proposed model before recommending them. In that case it may consult our files and library, which are apparently better furnished in that

line than its own.

The "remedy" which The Iron Age suggests is to decree that Rule VII shall be construed in a certain way. But this is exactly the practical construction now put upon that rule. The only thing it does not give The Iron Age is the right to antedate the official publication. We respectfully suggest to our contemporary that a more careful study of the rules and the facts would give it a second access of enlightenment equal to that which it has acquired from a first perusal. It attacked the management before it had read the rules; now it attacks the rules without knowing how they work, or why and how they came into their present form, or even what they mean and to what they refer. We make allowance for the difficulty of its position. It is pretty hard to reform the abuses in a society to which one does not belong, and particularly when the abuses do not exist. It is always hard to manage other folks' business, though it looks easy. But there is one good thing about The Iron Age, it owns up handsomely when it fails, and that is now in order. The Iron Age need not "wait for its turn."

The Salisbury Iron Region.

An area of 15 miles in breadth by 50 in centering on the point where the boundary lines of Connecticut, Massachusetts and New mines and the 21 furnaces now equipped to make charcoal pig iron in the celebrated Salis bury district.

The furnaces are nearly equally distributed in these three states, and from their long settle-Engineering and Mining Journal, the Institute ment here, among them being some of the construction and appliances are of old style,

its construction, and regards new ideas in the light of doubtful experiments which it will not pay to prove.

The dimensions and plants of the furnaces in this district differ but little from one another. Stacks are built of stone, creeted against a bank, the brow of which is close to and nearly on a level with the tunnel head, to which the charcoal, ore and flux is delivered on wheels without cost of elevating. With slight variations the stack is 32 feet high by 9 feet bosh. The hot-blast oven is creeted on top of stack, which, in most cases, is large enough to admit of this and chimney also, with which all are provided, the common hight being about 35 feet.

To 15 furnaces, power is supplied by water, to 3 by water and steam, and to 3 by steam. A moderate pressure and low temperature is used. A furnace of this size will make about ten tons of fron per day, their full annual production amounting to about 75,000 tons, for which 190,000 tons of ore and 10,000,000 bushels of charcoal are required, equivalent to wood of charcoal are required, equivalent to wood of the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered, for if the iron had the metal had been altered.

of charcoal are required, equivalent to wood from 12,000 acres of woodland.

The ores are brown bematite, and are mined from numberless beds worked mostly in open cut, but few with shafts underground. From the Old Hill bed (in Salisbury, and from which the term Salisbury Iron is taken), large quantities of good ore have been mined, yielding fine quality of iron. Other mines in and near Salisbury and at Amenia, Richmond and Kent are noted, of which ore from the latter has yielded 50 per cent. metal in pig bed, the common yield being from 21/4 to 21/4 tons of ore to ton of iron. The continued future supply of charcoal in this limited area is getting to be already a vexed question, and the efforts of the several companies to insure supply by making large and long-time contracts, have been since 1873 a source of great loss.

The contracts were made at the old high prices of charcoal, and beside sinking nearly half the price paid, it made it necessary to run the furnaces in order to make room for the increasing supply, also to save cost of insurance and loss in quality by standing, and so pushed production at a time when contraction was most necessary. This has caused more depression in the iron industry of this section than would follow from the natural causes. Some furnaces are not yet clear of their contracts,

furnaces are not yet clear of their contracts, and are still producing, but stocks of most are largely reduced. Six only are in blast at present. The market is such as not yet to admit of resuming work. Estimates on the cost of producing iron vary greatly, as they are based upon the consumption of charcoal and price paid for ore. The furnaces which make the best iron consume about 140 busbels of charcoal to the ton. Charcoal has been bought for the past season at 8 cents, delivered, but managers are not prepared to make estimates for the past season at 8 cents, delivered, but managers are not prepared to make estimates for full year's supply for less than 10 cents. The best ores cost \$5 per ton, laid down at the furnace, and an estimate, based on these prices and present cost of labor, at less than \$30 per gross ton cannot be depended upon. The iron is graded in seven numbers for the car wheel trade, which is its largest consumer, the remainder going for malleable iron, ordnance, agricultural tools and machine rolls and castings.

castings.

It has been freely predicted that the future It has been freely predicted that the future supremacy of the Salisbury iron would suffer as the result of hard times, in this way, viz.: that railroads and other consumers of this iron, in their enforced economy and the disposition to bridge present necessities with the cheapest available timber, would bring into larger notice in its special market the charcoal iron, which had hitherto taken the background when it was asserted the qualities of Salisbury iron would be found to exist in others which would thereafter stand on a level with the Salisbury iron would be supplied to the salisbury iron would be supplied to the salisbury iron would be found to exist in others which would thereafter stand on a level with the Salisbury iron would be supplied to the s fron would be found to exist in others which would thereafter stand on a level with the Salisbury. The matter has been freely tried and to the cost of Salisbury, meanwhile, but to its credit hereafter. The opinion of many car wheel men and other consumers of the fron has been freely given to the iron men of this section in favor of Salisbury, going so far as to state that Salisbury warm blast iron is superior to most other cold blast irons. When a consumer expresses this opinion to his producer, that it can be depended upon will be readily admitted. The ironmasters of the Salisbury furnaces are confident—upon the hoped for revival of more prosperous times—of a ready market, and that the iron, on account of its superior quality, will be sought for at prices which will yield a fair profit.

The Old Suspension Bridge at Niagara.

The Ciccinnati Merehant and Manufacturer says: The suspension bridge over the Niagara River was constructed by John A. Roebling, in 1855. It has a span of 821 feet, and a deflection of 59 feet; 14,560 wires are employed in the cables, the ultimate strength of which is 12,000 tons. Since its completion, in the year above mentioned, the bridge has been subjected to the almost constant strain of beavy railroad trains, and thus for a period of 22 years it has undergone a trial of the greatest severity, Quite recently, it was deemed advisable to over haul the structure thoroughly, in order to determine whether any repairs were required, or whether the jarring or straining to which the wires had been submitted had-as some theorists believed possible-impaired the quality or tenacity of the iron. Accordingly, the bridge was closed to travel; and to Colonel William H. Paine, Assistant Eugineer of the East River bridge, was assigned the duty of critically inspecting the structure. We are indebted to Colonel Paine for an account of his investigations, which have resulted in his conclusion that the safety of the bridge is in nowise length, running nearly north and south, and lessened. The detailed report of the engineer will be looked for with great interest, as it will undoubtedly add much to our knowledge relative to the durability and strength of the suspension system of bridge building.

The anchorage cables were imbedded in masonry and cement, which it was necessary to remove in order to admit of their examination—a tak of no small officients, as the me.

tion—a task of no small difficulty, as the masonry was like solid rock. It was found that out of the 14,560 wires less than a dozen were out of the 14,560 wires less than a dozen were seriously corroded, and these were in the first anchorage. The metal on the other wires showed the original grain with distinctness. Not content, however, with this highly favorable appearance, Colonel Paine proceeded to experiment upon the wire, in order to discover whether the means provided to allow of its expansion and contraction—namely, the placing

was detached and weighted until it broke. The object here was to see whether the nature of the metal had been altered, for if the iron had become granular and had lost its cohesiveness, the fracture would be a straight one, similar to that of cast iron. On the contrary, the wire, when subjected to the stress, extended until its diameter was reduced 50 per cent. before it broke.

A cable guy was next selected and made to A cable guy was next selected and made to sustain a dead weight. The construction estimate places the maximum burden which that guy would ever be required to bear at 15 tons. The guy parted at 53 tons. To show how perfectly the wire had retained its original characteristics, Colonel Paine, having observed that the wire, on being removed from the cable, tended to coil in a circle of about 5 feet in diameter, sent to the person who had optimally tended to coil in a circle of about 5 feet in di-ameter, sent to the person who had originally prepared the wire for its place for information as to the size of its former coil. He learned that it had been wound on a drum 2 feet in di-ameter, and that it had been subjected to a straightening process which took about half the curve out of it. Certainly no more remark-able proof could be adduced to show that the spring of the wire had in no respect been over-come.

Although the bridge has thus been shown to Actionagh the bridge has thus occurred by the thoroughly safe, and to have wonderfully withstood wear, still more elaborate examinations are to be made, and the structure will not be open to traffic until these are completed.

The Coal Market.

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 3°10 3°65 3°35

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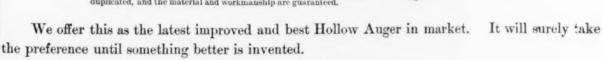
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ionien, Rusiant, Centrals und Sob-Amerika. West-Indien und allen anderen Martien, weiche früher englische und Continentale Cisensabettale bezogen.
Amerikanunge Fabrikanten machen jeht bie größten Anstrengungen, threm Kaneren einen Wartl in fremden Landeren zu erössten und sind sie willens sollten handlungsbaufern im Auslande, die iebe gebrikate zu bezieden genigt fint, die lieralsschen Offerten um machen.
Die 'Iron Ago' ist die einzige anerkannte Zei schrikt, die die Indienvarene, Massimme und Stabi-Industrie reprasent dem in der Anderschen und Stabi-Industrie reprasentiel, da beinabe ein jede Mitglied best angeführten handelszweiges ein Konnent berfelben ist. Die Zeitsfürft weist auch bereits eine Ungeländigen Abonenten in Canada, Angland, Island, Schrittland, Wales, Frankreich Deutschlohd, Besten der Schweben, Norwogen, Nuhland, Westunden, Bermudss, Bragilien, Meziec, Chilt, Buenos Nirvos, den Candrid, Inseln, Mexikand, Bestutian, Mexikand, Bestutian, Mexikand, Deutschlohd, Besten der Schweben, Norwogen, Nuhland, Westunden, Den wir die Grünklich vermehren könnten, indem wir jedem, für den fer von Wertschlich vermehren könnten, indem wir jedem, für den fer von Westschlich vermehren könnten, indem wir jedem, für den fer von Westschlich vermehren könnten, indem wir jedem, für den fer von Westschlich vermehren könnten, indem wir jedem, heit vermehren dertoffen, auf verlößliche Aussissandel bezeigen, unsere Zusiende von Kannen von Cheinsbuffelen aller Pahrer und wir befreiben und, die estung zur persönlichen Einschlich ist, die Women auslähnischer Apertianten und Einenburkliefen auf einer Abere und wir der kartischen und Einenburkliefen au erlangen; auch wird Insernation derrefte ausländischer Abertianten und Erfeinbulkrieflen zu erlangen; auch wird Insernation der Kartischen und Erfeinbulkrieflen zu erlangen; auch wird Insernation der Rabiten und bereichen, die unser Berschlücher erbeien. Für jede der gedem kinde kontentalien, die der gedem und wir Insernation der erbeiten. Der und behöllich ist, die Women ausläh

größerung ber Greulaiten unterer gennent jene unferes Malte ericheinen gunn gegen gene geften ausgefesten. Da alle regelmäßigen Annoncen in 3 Ausgaben unferes Mlaites ericheinen, bie bi on warbe bie monailide Nusgabe allen benen gwedeniprechen bein, bie bi Beifdrift nur wegen ber Abereffen ameritanischer Gifentabritanten zu halte geneigt wären, biefes wurde nur mit einem geringen Kostenaufwande ver

Mobe-Exemplare werben allen freundlicht ohne Koften zugestelt. Das Abonement mit Lorto bergat:

	Musgabe.	Bulbmonati. Ausgabe.	Musgabe.
Jür bie Bereinigten Staaten, Canaba u. Cantroich Infeln. Werteo Werteo West Janten. Erdhamrifa (ohne Brafitten) Brafitten Guropa Kuftralien Angtralien Japan China Andere Canber	\$4.50 6.50 5.00 8.00 6.50 6.00 5.00 8.00 6.00 5.00	\$2.30 3.25 2.50 4.00 3.25 3.00 2.50 4.00 3.00 2.50 3.00	\$1,15 1,50 1,25 2,00 1,50 1,50 1,25 2,00 1,50 1,26 1,26

Rate ber Annoncen ist wie folgt: Einmalige Jufferat 1. Carree (einen Zoll weit, Eingel-Spalte) toftet Le. G., einen Monat \$7.50, brei Monate \$15.00, fech Monate \$25.00, ein Sabr \$40.00 in Broausbegablung. For ilebermitzlung vom Gelbjenbungen erfuchen wir Wechfel, gabibar an David Williams auf eine Bant ber Breeinigten Stoalen ober Curropas gegagen, ju sienben, ober wenn es nicht möglich ift, biefelben uber schaffen, ben Betrag in Briefmarten bes betreffenien Landes dem Griefe beiulegen.

tuligen. Reitungs und Buchbantler in trgend meldem Meltibelle, fönnen ble Trom Age burch ble American News Company, New York U. S. A., s Willmer & Rogers News Company, New York, U. S. A. in Echben, ngland, ster tie San Francisco News Company, California, U. S. A. Gefälligft au obreffit 'n:
Gefälligft au obreffit 'n:
MR. DAVID WII I IAMS.
88 Reade Street, New York, U. S. A.

The Iron Age

(A Edade de Ferro.)

Revista Americana do Commercio Metallico e de Forramentas

Publicada todas as Quintas-feiras, por DAVID WILLIAMS,

ao No. 88 Reade Street, New York.

Revista Americana do Commercio Metallico e de Forramentas Publicada todas as Quintas-feiras, por DAVID WILLIAMS, so No. 58 Reade Street, New York.

Em vista do rapido acsenvolvimento que se tem commercio de exportação dos Estados Uridos quanto à Machinas, Forramentas, Artigos de uso caseiro e Utensilios metallicos, chamamos, a attenção do commercio dos paízes estrangeiros para a IRON AGE, cerios de que o conhecimento desta Revista será de grande beneficio practico para todos os que se acham intercessão no commercio de generos americanos, suas machinas, systhema de manufactura, etc. Cada numero da IRON AGE, além dos assumptos de sua especialidade, conteri, mais de 500 annuncios das mais importantes fabricas dos Estados Unidos, onde todos os interessados em manufacturas de ferramentas, encontrarão amplas informações a respeito de quaesquer mercadorias que se prestem introducção em paízes estrangeiros, atám como endereços dos verdadeiros fabricantes americanos.

A fama que as machinas e ferramentas americanas teem obtido no mundo inteiro é devido a sua burateza e superioridade, polo que são dignas de menção. A condição deste paíz, de alguns annos a esta parte, tem attribuido muita attenção dos negociantes e importadores assim como dos exportadores e fabricantes, cujas vistas começam a se voitar para mercados estraugeiros onde mais se manifestam as probabilidades de um consumo croscente, o que ao mesmo tempo laz com que envidem seus esforços afim de supprir essas lacunas vantajosamente e por meio de um reduzido preço sobrepujar qualquer competição. Grandes facturas comoçam a ser exportadas para todos os paízes civilizados do mundo, especialmente para a Inglaterra e suas colonias, para a Ruasia, America do Sul e Antilhas, assim como para a saór parte dos mercados até agora provistos pela Inglaterra e outcos paízes de lumos parade escais em toda a parte do mundo com o fim de servir de fonte de imformações aos Srs. legociantes de Ferragens e instrumentos de metal, e como tal considera-se o unico representante desse ra

Nova Zelandia e Gallea do Sul.

Certos de que o numero d'assignantes da IRON AGE, com um simples abono de um exemplar-specimen, attingirá dentro em pouco a um algarismo avultadissimo, nosoutros tentaremos fazer chegar ao conhecimento de todos os negociantes de ferragens, esta publicação, posto que o seu num ro já seja bem respeitavel—e de milhares de importadores entre elles. Desejosos, porém, de que se augmente o numero de leitores, no catrangeiro, rogamos a todos que pela industria se interessam, que nos enviem um ou mais endereços de amigos, cujos interess a tomem a peito, para que possamos enviar-thes um exemplar desta Revista. Outrosim que nos remettam directorios, almanaques, etc., oude obtenhamos informações concernentes a este ramo de industria por cujo serviço offerecemos recompensa liberal.

informações concernentes a este ramo de industria por cujo serviço, offerecemos recompensa liberal.

Como todos os anunicios terão de ser insertados nas trez edições da Bevista, as pessoas que quizerem obter a folha só como o fim de saber des endereços dos exportadores e fabricantes, a adição mensal sahir-lhes-ha mais economica e adaptada ao fim.

Remetteremos gratuitamente a qualquer parte do mundo um ex-

emplar PRECO DA SUBSCRIPÇÃO, INCLUSIVE PORTE.

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Europa	6.00	3.00	1.50
Australasia	5.00	2.50	1.25
Asia, India e India Oriental.	8.00	4.00	2.00
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ANNUNCIOS.

Por I pollegada em columna singela, cada insersão, \$2.50; o n.esmo, por 1 mez, \$7.50; por 3 mezes, \$15.00; por 6 mezes, \$25.00, e por 1 amo, \$40.00, — pagamento adiantado.

As rencessas deverão ser feitas por letiras se cambio, pagaveis ordem de DAVID WILLIAMS e descontaveis em qualquer casa boncaria nos Estados Unides ou na Europa: e quando iaso não for possível, remetta-se o equivalente em sellos de correio dos dif-ferentes paízes. O deliar (\$) é equivalente a 4 shillings esterlino, ou 5 frances.

on 5 frances.

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The Iron

A Review of the American Hardware, Iron and Metal Trades.

Published every Thursday, by DAVID WILLIAMS, at No. 83 Reade St., cor. Church New York.

PHILADELPHIA OFFICE No. 220 South Fourth Street. T908. HOBSON, Manager

WESTERN OFFICE, No. 77 Fourth Avenue, Pittsburgh, Pa JOS. D. WEEKS, Manager and Associate Editor.

BRITISH AGENCY.

The publishers of The Ironmonger, 44a Cannon Street, London, Eagland, will receive orders for subscriptions and advertise ents on our regular terms.

AUSTRALIAN AGENCY.

The American Hardware Company are our agents for Australia. They will exhibit files of The Iron Age in the American Building of the International Exhibition, a Sliney, N. S. W., where subscriptions will be received. After the close of the Exhibition, the files may be examined at, and orders for subscription directed to, their office in Melbourne. Sample copies will be mailed by them, free of charge, to any firm engaged in the trades we represent in Australia, Tasmania and New Zealand.

The circulation of The Iron Age is more than double that of any other journal of its class in the world. Established in 1855 under the name of The Hardware Man's Newspaper, changed in 1859 to The Iron Age, it is the eldest publication of its class in the world. The next in age is the Ironmonger of London, established in 1859.

Until 1870 The Iron Age was the only publication of its class in the United States.

The largest newspaper in the world is The Iron Age, each number of which is much larger than the London Times, and contains over 25 per cent. more matter than a copy of Harper's Magazine.

In the field which The Iron Age occupied twenty-two years ago it has been steadily growing in favor from year to year, and is to day practically without competition. The same energy, liberality and skill that have placed it in the front rank of trade journalism will in the future be employed more freely than ever to maintain and advance the high

N VIEW of the rapid development of the export trade of the United States in Machinery, Tools, Hardware, House Furnishing Goods, and other manufactures of Metals, we invite the attention of the trade in foreign countries to The Iron Age, believing it will be found of immediate practical value to all who are interested in American products, machinery or methods of manufacture. Each issue, in addition to its other valuable features, contains more than 500 advertisements of the leading manufacturers and merchants in the United States; and no person engaged in any branch of the Metal Trades in any part of the world can fail to find notices of new articles which can be successfully introduced into his trade, as well as the names and addresses of makers of almost every article of American Hardware.

The reputation for superior quality of American Hardware, Machinery and Tools is world-wide; and the condition of trade in this country for the past few years has forced manufacturers to seek a foreign outlet for their goods, at the same time that it has enabled them to cheapen their products to a point which admits of exportation to many markets at prices to compete with articles of foreign manufacture. Large quantities are now sent to almost all civilized countries of the world, and especially to England and her colonies, Russia, Central and South America, the West Indies, and to nearly all markets heretofore consuming the manufactured products of Great Britain and the continent.

American manufacturers are therefore making greater efforts at this time than ever before to introduce their products into foreign countries, and they will be found ready to offer inducements to responsible foreign houses desiring to handle their goods.

The Iron Age is the only acknowledged representative of the Hardware, Iron and Metal trades of America, nearly every member of which is a subscriber to it. Its foreign circulation already includes regular subscribers in Canada, England, Ireland, Scotland, Wales, France, Germany, Belgium, Switzerland, Austria, Sweden, Norway, Russia, West Indies, Bermuda, Brazil, Mexico, Chili, Buenos Ayres, Sandwich Islands, Australia, New Zealand and New South Wales.

Believing that a very large increase in our foreign circulation will be secured by merely placing copies of The Iron Age in the hands of those who need it, we have taken measures to bring it to the personal notice of all who represent the Hardware, Iron and Metal trades of every country in the world. Our list for mailing sample copies already comprises several thousand names in all parts of the globe, and we are still taking measures largely to extend it. We will, therefore, be under great obligations to anyone in this or any other country who will furnish us with one or more names of foreign manufacturers or dealers in Metal goods. We would also like particulars concerning foreign directories. Any information that will lead to the extension or improvement of our lists will be liberally paid for.

As all the regular advertisements appear in the three editions, persons who desire the paper chiefly as a means of learning the names and addresses of American manufacturers will find the Monthly answer their purpose at a very slight expense.

Specimen copies will be mailed free of charge to any part of the world.

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Newsdealers or booksellers in any part of world may obtain The Iron Age through the American News Company, New York, U.S. A.; the Wilmer & Rogers Nows Company, New York, U.S. A., and London, England; or the San Francisco News Company, San Francisco, California, U.S. A.

The Iron Age

Revue de la Quincaillerie, de la Ferronnerie et du Commerce des Métaux on Amérique. Publié tous les Jeudis par DAVID WILLIAMS,

En vue du développement rapide aux Eiats-Unis du commerce d'exportation de Machines, Outils, Quincaillerie, Ustensiles de ménage et autres objets métalliques, nous appelons l'attention des gens du métier à l'étranger sur notre publication "THB IBON AGE," dans la certitude que tous ceux qui s'intéressent aux produits de l'industrie américaine, à ses machines et à ses procédés de fabrication, la trouveront d'une valeur immédiate of pratique.

pratique.
Chaque exemplaire, en outre de ses autres points importants contient plus de 500 annonces des principaux fabricants des Etats Unis.

Content plus de coo annonces des principaux inorientis des Etats-Unis.

C'est pourquoi, nulle personne engagée dans une branche quel-conque du commerce des métaux, dans quelque partie du monde que ce soit, ne peut manquer de trouver des annonces d'articles nouveaux qu'elle peut introduire avec succès dans son commerce, ainsi que le nom et l'adresse des fabricants de presque tous les articles de Ferronnerie américaine.

La réputation de supériorité des Américains pour la Quincaille-rie, les Machines et les Outis est universolle, et la conditien des affaires dans ce pays-ci pendant ces dernières années a forcé les fabricants à chercher à l'étranger un écoulement pour leurs pro-duits, tout en les mettant à même de baisser leurs prix de manière à permettre l'importation de leurs produits dans beaucoup de localités et de faire concurrence aux articles de fabrication étran-gère.

locantes et de mire concurrence aux articles de aspirtantes étae.

On en expédie maintenant de grandes quantités dans presque tous les pays civilisés du monde et surtout en Angleterre et dans ses colonies, en Russie, dans l'Amérique Centrale et dans celle du Sud, aux Antilles et sur presque tous les marchés, qui jusqu'à présent out consommé les produits des fabriques de la térande-Bretagne et du Contineut.

Aussi les fabricants américaius font-ils maintenant de plus grands efforts que jamais pour introduire leurs produits fabriqués à l'étranger et on les trouvers prêts à offrir des conditions avantageuses aux maisons étrangères responsables, qui désireraient placer lours marchandises.

geuses aux maisons étrangères responsables, qui désireraient placer leurs marchandises.

"THE IRON AGE" est le seul représentant accrédité du Commerce de la Quincaillerie, de la Ferronnerle et des Métaux en amérique, et il compte parmi ses abonnés presque la totaité des personnes qui y sont engagées. Quant à la circulation à l'étranger, il a des abonnés réguliers au Canada, en Angleterre, en Irlande, en Ecosse, dans la principanté de Galles, en France, en Allemagne, en Belgique, en Suisse, en Antriche, en Suède, en Norège, en Russie, aux Antilles, aux lies Bermudes, au Brésil, au Mexique, au Chill. à Buenos-Ayres, aux iles Sandwich, en Australie, dans la Nouvelle Zélande et dans la Nouvelle Galles du Sud.

Croyant que pour accroître de beaucoup notre circulation, suffix de placer "THE IRON AGE" entre les mains de ceux qui en ont besoin, nous avons pris nos mesures pour le mettre à la

suffira de placer "THE IRON AGE" entre les mains de ceux qui en ont besoin, nous avons pris nos mesures pour le mettre à la portée de tous ceux qui représentent le Commerce de Quincaillerie, de Ferronnerie et des Métaux dans tous les pays du monde. Toutes les annonces régulières parsissant dans chacune des trois éditions, les personnes qui ne désirent le journal que pour savoir le nom et l'adresse des fabricants, trouveront leur affaire dans l'édition mensuelle et à très peu de frais.

Des spécimens de notre journal seront envoyés, franco, et avoc plaisir dans toutes les parties du monde.

TAUX D'ABONNEME	*****	-	
	Hebdoma- daire.	Semi- mensuel.	Menauel
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Asie-Inde et Indes Orientales	8.00	4.00	2.00
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Annonces.

Par carré (2% centimètres dans une seu'e colonne) une fois, \$2.50; un mois \$7.50; trois mois \$15.00; six mois \$25.00; une année \$40.00; payable d'avance.

Les Remises doivent être faites par traite payable à l'ordre de Davio Williams, sur une banque quelconque en Amérique ou en Europe: ou bien si l'on ne peut se procurer de traite, on peut envoyer le montant en timbres-poste, de quelque pays que ce soit. Un dollar est égal à 4 shillings Sterling ou à 5 francs.

Les marchands de journaux et les libraires peuvent se procurer THE IRON AGE par l'entremise de l'American News Company, New York, U. S. A.: and London, England; ou the San Francisco News Company, California, U. S. A.

S'adresser à DAVID WILLIAMS, 83 Reade St., New York, U. S. A.

The Iron Age

The Iron Age

Revista de ferreteria americana y de las industrias ferreas y de

metales.

Se publica todos los Juevee por DAVID WILLIAMS

en Reade Street, No. 83, Nueva York.

En vista del rápido desarrollo del comercio de exportaçion de
los Estados Unidos en Maquinaria, Instrumentos. Ferreteria,
Efectos para las casas, y otras manufacturas de metales, llamamos
la atencion del comercio en los países extranjeros hácia el periódico THE IRON AGE, creyendo que todos los que se inter: sau
en los productos, maquinaria ó métodos de manufactura americanos, lo hallarán de un valor práctico é inmediato. Cada número
ademas de otras materias valiosas, contiene mas de 500 anuncios
de los principales fabricantes y comerciantes de los Estados Unides; y ninguna porsona que se ocupe de algun ramo de las Ind ustrias de metales, en cualquiera parte del mundo, dejará de hallanoticias de nuevos articulos que pueden introducirse con ésito en
su comercio, asi como el nombre y direccion de los fabricantes de
casi todos los artículos de Ferreteria Americana.

La reputacion de la calidad superior de la Ferreteria Americana,
Maquinaria é Instrumentos, es universal; y el esiado del tráfico oeste país en los últimos años ha obligado á los fabricantes à buecauna salida en el extranjero para sus efectos, al mismo tiempo que
les ha facilitado abaratar sus productos hasta un punto que permite su exportacion á muchos mercados à precios que compiten
con los artículos de masufactura extranjera. En la actualidad se
envian grandes cantidades á casi todos los países civilizados del
mundo, y especialmente à Inglaterra y sus colonias, Rusia, América Central y Meridional, las Antilias, y á casi todos los mercados
que hasta ahora consumian los productos manufacturados por la
Gran Bretafía y el Continente.

Los fabricantes americanos, por lo tanto, bacen en la actualidad
mas grandes esfuerzos que nunca para introducir sus productos en
los países extranjeros, y se hallan dispuestos á ofrecos alicientes
à las casas extranjeros, y se halla

à las casas extranjeras de responsabilidad que descen ocuparse de sus mercancias.

El periódico THE IRON AGE es el órgano reconocido de la Ferreteria é industrias ferress y de metales de América, y casi todos los que pertenecen à esos ramos de comercio, están succritos à él. Su circulacion en el extranjero incluye suscritores en Canadá, Inglaterra, Irlanda, Escocia, Gales, Francia, Alemania, Bélgica, Sulza, Austria, Suecia, Noruega, Rusia, las Antillas, Brasil, Méjico, Chile, Buenos Ayres, las islas Sandwich, Australia, Nueva Calcia, y Nueva Gales del Sur.

Creyendo que un aumento en nuestra circulacion en el exterior

Creyendo que un aumento en nuestra circulacion en el exterior podría obtenerse poniendo simplemente ejemplares del periódico THE IRON AGE en manos de los que lo necesitan, hemos tomado las medidas convenientes para hacer que liegue al conociniento personal de todos los que vepresentan la Ferreteria é Industria létreas y de metales en todo de los paises del mundo. Nuestra lista de ejemplares demuestra para en enviar por el correo, comprende ya varios miles de nombres en todas partes del globo, y aun tomamos medidas para acrecentarla. Por lo tanto quedaremos muy agradecidos à todo el que en este é en otro país nos auministre uno é mas nombres de fabricantes extranjeros è comerciantes en mercancias de metal. Tambien desexriamos particulares concernientes à los directorios extranjeros. Cualquier informe que pueda tender à la extension ó mejora de nuestras listas, serà pagado liberalmente.

tender a la extension o mejora un nucletas mens, sea paper-liberalmente.

Como todos los anuncios regulares aparecen en las tres edicio-nes, las personas que solo deseen el periódico como medio de concer los nombres y direccion de fabricantes americanos, verás que la edicion mensual liena cse objeto con muy poco costo. Ejemplares de muestra se enviarán grátis por el correo á cual-

uier parte del mundo. PRECIOS DE SUSCRICION, PAGO EL PORTE DE CORREO.

	Semanal	Semi Mensual	Mensua
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Antillas	5.00	2.50	1.25
América del Sur (excepto Brasil)	8.00	4.00	2.00
Brasil	6.50	3.25	1.50
Europa	6.00	3.00	1.50
Australasia	5.00	2.50	1.25
Asia-India	8.00	4.00	2.00
Japon	6.00	3.00	1.50
Chipa	5.00	2.50	1.26
Otros Trines	6.00	3.00	1.50

Por cuadrado (una pulgada en una sela columna), una insercion, \$2.50; un mes, \$7.50; tres meses, \$15.00; seis meses, \$25.00; un año, \$40.00; pagadero adelantado.

Las remesas de dinero se harán en libranzas pagaderas á la remesas de dinero se harán en libranzas pagaderas a los Estados Unidos ó Europa; ó, cuando la libranza no pueda obtenerse, se puede remitir el importe en sellos de correos de cualquier pais. Un peso equivale á custro chelines sterling ó cinco francos.

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Los vendedores de periódicos ó libreros de cualqui'r parte del mundo puedeu obtener THE IBON AGE por medio de la "News Company," de Nueva York, la "Willmer a Rogeiss News Company," de Nueva York, E. U. de A., y de Londres, Inglaterra; ó la "San Francisco News Company," de San Francisco, California, E. U. de A. Dirigirse à DAYID WILLIAMS, 53 Reade St., Nueva York, E. U. de A.

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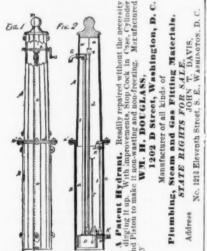
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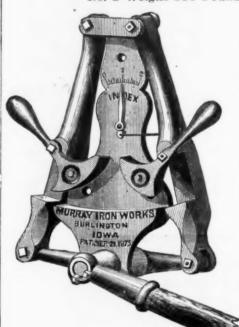
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Morse Patent Straight-Lip Increase Twist Drill, Beach's Patent Self-Centering Chuck, Solid and Shell Reamers.

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All Tools exact to Whitworth Standard Gauges.

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Importing Machinery.

The Philadelphia North American says: The scheme to legislate in favor of supplying the new cotton factories at the South with foreign machinery, to be imported free of duties, offers some remarkable features that ought not to be suffered to pass unvoticed. When American cotton goods were successfully placed in the British markets cheaper and better than the English, the excuse given for it by the foreign journals was that the American manufacturers had the advantage of superior labor-saving machinery. This was and still is a fact, for the American machinery is in every way superior to the English, and will turn out more work at less cost. It was then urged that this defect must be overcome by the British manufacturers in some way, and the Southern scheme shows how it is to be done. The old machinery is to be sold to the Southern cotton factories, and the English mills are to be supplied with better machinery, furnished with all the American improvements. !And the Southern senators and representatives are so set up with the idea that they want to be relieved of import

This notable device is of the same class as that which proposed to supply us with cheap iron steamships by selling us all the old hulks lying idle in British ports. Of course it would all be clear gain to the foreign mill owners to find so ready a market for their old machinery. The only other way that any possible explanation can be given to this movement is that the English mills are to be removed to the cotton states, and there worked for the benefit of foreign capital, because the American manu facturers have rendered any other competition impossible. But the references to large subscriptions by parties in Philadelphia and New York seem to be intended to give the enterprise an American aspect, though why the builder of the great Corliss engine should be auxious to supply the South with foreign ma-chinery is "one of those things that no fellow can find out." The whole affair has been arranged so nicely that all we have got to do is to surrender at discretion, give up our industries and become humble dealers in foreign wares. We are not only to give up all idea of furnishing machinery for these Southern factories; we are to supply the capital to work them and to pay for foreign machinery, and the skilled labor to build up rivals to our own

If we desired the Southern cotton industry to fail we could wish nothing better than to see it supplied with old second-hand machinery, discarded in England as unable to compete with the superior machinery of our own mills, We beat the products of that machinery in England, and it is not at all probable that we shall be any less successful if the machinery be transferred to the South. But if any Philadelphians are fools enough to go on such a wild goose chase as this they will deserve all the losses they are certain to meet with. It is not a question of prices or duties in any de-The superiority of the American machinery is so incontestable, that with it our cot-ton mills can beat any cotton mills in the world worked by inferior machinery. And if this scheme to supply the Southern mills with second-hand imported machinery be carried out our merchants will be able to undersell them at their very doors. The pretense that the foreign mills possess some advantages that ours do not is invariably put forward as an excuse for introducing all kinds of foreign machinery. Very often the sole purpose of it is to manufacture sentiment in favor of the purchase of imported machines and to control the market against our own manufacturers of machinery by this unwarranted assumption of advantages that are wholly imaginary. In the saving of labor American mills have no superiors in the world, and as to their products the comparisons made at the Centennial were convincing to the foreign visitors and judges.

In it is observable that no one ever proposes to import foreign machinery for mills in the New England, Middle and Western States, where all It is observable that no one ever proposes to England, Middle and Western States, where all the great industries flourish, while such a movement at the South has been incessant ever since the war. The people of the West were as destitute of machines shops as the South. But now they have both the factories and the machine shops, and they imported no machinery in either case. The people of the South are too unfamiliar with such matters to know the difference between British and American fron and machinery, and therefore they are easily gulled by offers of low priced foreign machinery, and do not stop to look into the details. After they shall have stocked their mills in this way with old and discarded machinery they will be surprised to learn that their cotton goods can be undersold everywhere by British and American mills, in consequence of the saving of labor effected by new and im-

proved machinery.

These Southern gentlemen who are now moving in this matter have at the South no shipyards to protect, and therefore they want foreign ships; no manufactures of mill machines, and therefore they want foreign machinery. This sort of narrow-minded selfishness has always flourished at the South, and therefore it is nothing new now. It never yet succeeded in making the South powerful, and it never will. With producious resources in iron, lumber and coal, the South has no shipbuilding industry, and no iron industries equal to its own necessities. If protection is just for the encouragement of Southern cotton manufacturers, we do not see upon what principle it can be denied to the metal dustries of Pennsylvania, New Jersey, Delaware and Maryland. Our patent laws protect the interests of our own inventors in all the manufactures of this republic; and Perkin's Horse Shoes, once let foreign machinery be imported free, Romer's Padlocks, and foreign machinists may supply us with machines made abroad upon American patents American Screw Co.'s Screws,

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Manufacturers of Calkers', Carpenters', Stone Cutters', Tin, Copper and Boiler Makers' MALLETS,

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Messus, Symonos & Co. Gentlemen: We hereby certify that we
we been using your "Eureka bteam Packing" for some time, and
digited as as good, and in many iransces better, satisfaction than iave been using your "Eureka Suam Facas better, satisfaction that ind it gives us as good, and in many irstences better, satisfaction that my other packing we have used.

Yours, truly,
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Mesars, Symonds & Co. Gentlemen; We have been using your 'Kureka Packing' for about three years, and finditto last longer than any packing we ever used—in fact, superior to any—without cutting piston-rods or journals of our steam cylinder. Yours, truly, JAMES MARTIN & CO.

Office of Chifton Mills, Ciffon, June 22d, 1874.
STMONDS & Co. Genillemen: I have been using the "Eurek
Packing "for some time, sad find that it gives me mon
in than any packing I have ever used.
Yours, respectfully, OBORN LEVIS.

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without paying the inventor. For the whole of the foreign machinery, though now inferior to our improved works, is full of contrivances of American origin that have never yielded the inventor anything from the foreign work, The whole arrangement seems to be unjust and unwarranted, and we trust that if any Philadelphians are concerned in the enterprise they will drop it at once and leave it to the free traders to get along with in their own way as best they can.

Burning Anthracite Dast,

The Pottsville (Pa.) Chronicle says: Ever since the mining of authracite coal was commenced in this region, the question of disposing of the waste coal dirt in a profitable manner, has attracted the attention of persons interested in coal operations. Of late years the large mountains of refuse coal dirt have increased so rapidly that it has become a positive necessity to adopt some means to get rid of it. and to accomplish this end a number of plans have been tested. One of the most successful was the process of compressing the coal dirt into suitable shapes by means of molds and pressure, first mixing clay and coal tar, or, in some cases, asphaltum with it. This worked pretty well, but did not fill the requirements for utilizing the coal dirt, because it was too expensive. Among the many persons who turned their attention toward utilizing this waste product of the mines, was J. E. Wootten, Esq., Superintendent of the Philadelphia and Reading Railroad Company, who is well known as the inventor of quite a number of valuable railroad inventions. Mr. Wootten's ideas are decidedly practical. He does not believe in theory alone, and having turned his attention to this matter, he commenced experimenting with a view of using the coal dirt and saving money thereby. After repeated trials he was successful in inventing an apparatus, which not only burns the coal dirt, but does it in such a manner as to save a very large amount of money, and makes the dirt almost as valuable for fuel as hard coal. A Chronicle reporter, who visited the Saint Clair shafts, where the new apparatus is in operation, found that Mr. Wootten's patent consists of a novel shaped grate, and a series of pipes which serve to convey a blast of air to the furnaces. The blast is created by running a three-eighth inch steam pipe, having a three-sixteenth inch nozzle, into a funnel-shaped cast iron pipe about a foot in dismeter at the large end and tapering to the size of the pipes which run to the fire grate. The grate is formed of large cast iron plates, six feet long and seven inches wide, and each of which is perforated with small holes. The blast is forced through these perforations, and the coal dirt being wet before it is showeled into the furnace, it is found to create a more intense heat than ordinary coal. The saving at the St. Clair shaft is nearly \$1200 per month, as we were informed that, formerly, it took about six hundred tons of coal to feed the boiler furnaces for that length of time. The shaft has been abandoned, so far as mining coal is concerned, for some years, but the main pumps and engines are still used to keep the water out of the Wadesville and Hickory collieries, which now are owned by the Philadelphia and Reading Coal and Iron Company. Mr. Wootten's furnace has been in use at this place for about eight months and has been subjected to a severe test. It has proved to be very valuable, and the P. & R. company will save by its use at their collieries alone many thousands of dollars monthly, and this, of course, will enable them to lessen the cost of maintaining their numerous collieries. The invention is applicable to any kind of furnace, and will no doubt come into very general use before long. The huge piles of black dirt, which have marred the beauty of our hillsides will, under this process, become a source of profit, and what has heretofore been considered a waste will be transformed into a utility.

Responsibility of Vessel Owners .-An important marine suit brought in the United States District Court at Detroit was recently decided by the Judge, which, if sustained by the higher court, will establish a new feature relative to the responsibility of vessel preside all advantages Molding Machines possess over hand molding, it is especially claimed for this machine that it requires no special fis-ks or boards but the same tre used as for hand molding; it occupies no more room than a bench for hand molding; it produces at less cost more, smoother and uniform castings.

Buffalo to Detroit. Stopping at Cleveland on Price list on applicable. owners. In the fall of 1875 the propeller Elthe afternoon of November 28, the propeller left the barges at anchor outside while she went in for fuel. Toward evening the wind began to blow, and the captain of the Elmira concluded to wait and see what kind of a night it would be, neither going for the barges nor sending a tug for them, but left them to ride out the storm as best they could. The Keliey and the Chamberlain accordingly went ashore, and the latter became a total wreck. The owners brought suit to recover damages to the amount of \$10,000, and have just obtained a verdict in their favor for the full amount, which, if eventually sustained, establishes the fact that a propeller is holden responsible for the proper protection of the consort accompanying her.

> An arrangement has been concluded between the Superintendent of the United States Naval Observatory in Washington and the Western Union Telegraph Company, for the purpose of disseminating the standard time as determined daily by the Naval Observatory, to shipowners and masters, business men in general, railways, chronometer makers and others, and to the chronometer makers and others, and to the public generally. In pursuance of this agreement, a time ball of large size is to be dropped daily from the tower of the Western Union Telegraph Company's main building in this city, and arrangements will be made for controlling public clocks in New York and other places, and also for distributing the noon signal of the Naval Observatory to various cities in the United States having more than 30,000 inhabitants.

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"CLIMAX" No. 1, extra large and heavy, with long strap for heavy warehouse de-

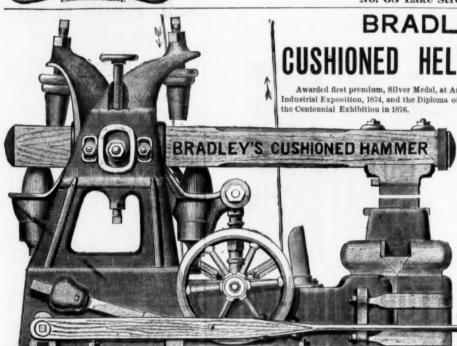
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Each set packed in a paper box. % doz. sets in a case.

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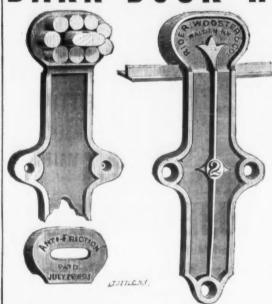


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popular Hanger is in too general use to require any description.

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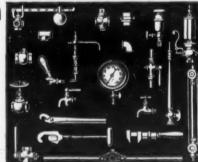
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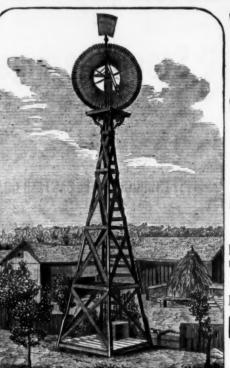
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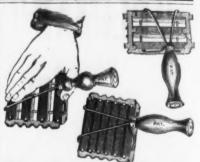
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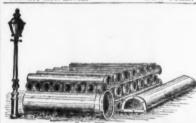
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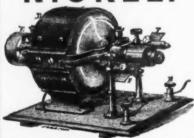
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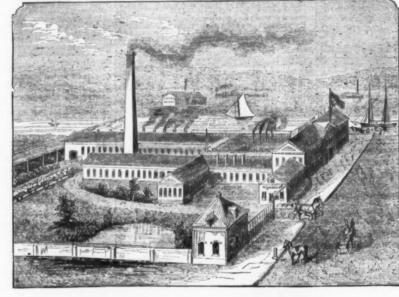
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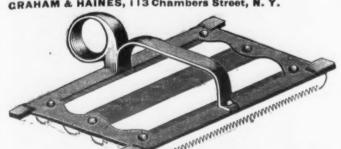
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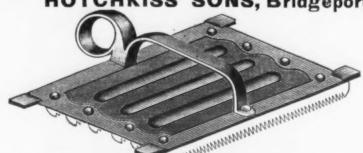
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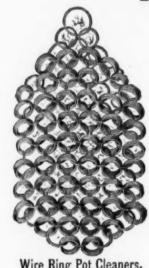
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OUR ICE TOOL, having been favorably known to the trade for the past two years, recommends itself; but it will be observed that we have reduced the price from \$4 to \$3 per dozen, which we are enable to do by the depreciation of cost of materials used in its manufacture.

THE FAMILY HATCHET-HAMMER we recommend to the trade as the best and best selling tool of the kind now or ever known to the trade. While we offer it at a low price, still it is made from the best of materials, in first-class workmanship.

THE PRAGUE NOVELTY WORKS, Rochester, N. Y.

Or W. M. ERNST, General Sales Agent, No. 26 Chiff Street, NEW YORK CITY.

Harvey W. Peace, Vulcan Saw Works.

Patent Ground RADE MARKET W.PEACE



Circulars, Cross-Cuts, Mill,

Molding and Planing Knives, Plastering Trowels, Mitering Rods, &c.

E. C. ATKINS & CO., Indianapolis, Ind., Saw Manufacturers and Repairers. GENUINE SILVER STEEL DIAMOND X CUT SAW.

\$1.50 Per Foot.

■



13" BEWARE OF THE IMITATION CALLED "DIAMOND TOOTH." .#1

Wheeler, Madden & Clemson

MFG. CO., MIDDLETOWN, - - - - NEW YORK.

WARRANTED CAST STEEL

Of every description, including Circular, Shingle, Cross-Cut, Mill, Hand, WOOD SAWS, Etc., Etc.

E. M. BOYNTON,

First-Class Saws, Saw Frames, Cross-Cut Handles, Tools, Files, &c. Also Sole Proprietor and Mfr. of the Genuine Patent Lightning Saw,

Special attention is called to my new Centennial Saw, atented March 28th, 1876; Special File and Saw-Set ombined, patented June 20th, 1876; Cross Cut (Loop) aw Handle, patented February 18th, 1876; New Onelan Saw, with Patent Double Removable Handle Attention se like a Har

can use to condense like a Hammer Set perfectly; Cross-bar Wood Saw Frame, patented Nov. 12, 1872; also Cross-Cut Handle, with castings, patented Feb. 15, 1870. These goods complete the scientific tools for cutting timber, instead of wearing it off with notched V teeth (which are like a fractured plate sharpened). AWARDED CENTENNIAL MEDAL AFTER ACTUAL TEST.



PHILADELPHIA, November 11th, 1876.

REPORT ON AWARDS. GROUP No. 15.

Product: Saws in great variety; special improvement in shape of teeth, called Patent Lightning Saw.

Name and Address of Exhibitor: Eben Moody Boynton, New York.

The undersigned having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for award, for the following reasons, viz:

Report: "Being of very Superior Quality and of great Practical Utility."

DANIEL STEINMETZ, Signature of the Jadge.

J. D. IMBODEN, of Virginia,
J. D. IMBODEN, of Virginia,
J. DIFENBACH, of Germany,
A true copy of the record.
Given by authority of the U. S. Centennial Commission.

J. L. CAMFBELL, Sec'y.

CHARLES STAPLES, of Maine,
D. STEINMETZ, of Penn.
J. Progress.
FRANCIS A. WALKER, Chief of the Bureau of Awards.
Given by authority of the U. S. Centennial Commission.
J. L. CAMFBELL, Sec'y.

J. R. HAWLEY, Prest.

AMERICAN SAW CO.,

Movable Toothed Circular Saws, PERFORATED CROSS-CUT SAWS

BAEDER, ADAMSON & CO., CARRIAGE Manufacturers of SAND & EMERY PAPER & EMERY CLOTH.

(Also, in Rolls for machine work.)

Cround Emery, Corundum & Flint, Clue & Curled Hair, Hair Felt, & FeltIng for Covering Boilers, Pipes, &c., Cow Hide Whips.

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724 Girard Ave., Philadelphia





Conductor Pipe RIBBED TUBING

Stamped & Press Work to order.

Correspondence Solicited.



JOHN H. REOCK, PASSAIC SPRING

New York Wholesale Prices, May 2, 1877.

	1
HARDWARE.	Fast
Anvils. American	Loo
Anvils.	Loo
Ash Sifters	Figure Bost
Conn. Valley Mfg. Co	Fast
Ves. Beecher (French, Swift&Co) Griewold. Nobies Mitz Co. Kok's, Douglass Mfg. Co. Ook's, Douglass Mfg. Co. Shell Mfg. C	Loo
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Enterprise Mfg. Co	dis 20 %
Enterprise Mrg. Co. Fry Fenns, burnished, P. S. & W., new list	8.00 9.00
" Star	dis 35 %
Wire	die 40 %
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THE MILE OF ATOMIC STREET, STR	418 5 %
Tower's Hand Cuffs, \$4 00 per pair	418 5 %
Magnetic Tack Warner & Noble's Hana Cuffs and Leg Irons. Tower's Hand Cuffs, \$4 00 per pair. Leg Irons \$5 20 per pair. Providence Tool Co.'s Hand Cuffs, \$15 per doc Leg Irons 25	418 5 %
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	Gate, N. Y. State
	Rolled Plate
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	Screw Hook and Eye
	Hoes. (% in. 13c)
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	Planters', Handled
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-	Gotton G
	" Sargent's list dis 60&10&10 \$ "Reading list dis 35&5 \$10 \$10 \$ Colling (Hart's list dis 60&10&10 \$
	Harness Sargent's Hst dis 60'&5&'10' Z Harness Heading Hst dis 90% 10' S Coat and Hat, Hart's Hst dis 90% 10' S Coat and Hst dis 90%
	"Reading dis 40&10 % Wrought Staples and Hooks and Staples dis 75 % Stapley a list dis 40 % 10 %
	Wife Screw Hooks and Eyes
	Content Cont
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	Cortland
	National, Pointed and Polished Ex. Fig " 30c 27c 25c 24c 23c 27c Perkin's P't'd-Black, " 26c 28c 21c 20c 19c 18c Perkins' Pointed and
	Dauleungt Dainted and
1	Putnam Hammer P't'd " 32c 28c 26c 25c 24c 28c Vulcan, P't'd & Blued. " 81c 28c 26c 25c 24c 28c
1	Star syand, 18c.; Morgan. 500 lbs., dis 5 2 Ausoble. National and New London. 1000 lbs., dis 5 2 Perkins' and Vulcan. 1000 lbs., dis 5 3 Perkins'. Vulcan and Globe. 500 lbs., dis 5 3 Harse Nabecs. 500 lbs., dis 5 3 Harse Nabecs.
1	Horse Shoes. Burden. ** keg. \$3.92½ R. i. Horse Shoe Co., Perkins' improved Light, Med. and Heavy
1	Mule Shoes * Keg. 4:22%
	Perkins Snow Weig. 4'22's
	National Per doz \$650, dis 10 % Novelty Ice Breakers per doz \$650, net White's Sliding Head Picks per doz \$250, dis 25 % Dunian a Ging Picks per doz \$250, dis 25 %
	Wood Head Picka, Sargent'sper doz \$1°8, die 646:10 * 1008 "" per doz \$1°8, die 646:10 * 1008 Head per doz \$1°5, die 646:10 * 1008 Head per doz \$1°75 net 1008 Head per doz \$1°75 net 1008 Head per doz \$1°50 net 1008 Kitchen Lee Tongs de 1008 Head
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l	Nestles
	Carriage (Jap'd 80 cents per gross)dis 60&10 %
1	Carriage (Jap'd 20 cents per gross) dis 602-10 5 Base-Common dis 302-10 5 " Piush Tip dis 10 5 " Elastic End, No. 8 dis 602-5 5 Door, Mineral 4 602-81-75
1	Base
١	Melting, Hart's
١	
١	Tuoular No. 8, \$11:40; No. 1, \$14:00 } dis 5 @ 10 % With Guards, 50c. extra \$ dis 5 @ 10 % Pecricas No. 5, per doz \$11:75—dis 10&10 % Brady's Patent dis 10&10 % 10 % 10 % 10 % 10 % 10 % 10 % 1
١	Yankeedis 10 & 10 %
	Lard Presses
I	De Beque. dis 10 ± 10 ₹ Police. small, \$750: large, \$900, dis 5 ₹ Lard Presses. Draw Cut, 14 nich
1	Linen Fishdia 20 <
	Cotton Chalk dis 50 % SII. Lake Chalk Nos. 0, 1, 3, 3, \$6,650, 7,750, dis 20 % dis 20 % dis 20 % Wire Clothes, Gal'd each 50c, act
١	Sil. Lake Chaik
	Cabinet—Gaylord dis 254-54-2 5 Trunk dis 254-54-2 5 Trunk dis 254-54-2 5 Round key dis 404-10 5 Round key dis 354-10 6 Round key dis 354-10 7 Sarpent & Greeniest, Flat Key dis 26 8 Sarpent & Greeniest, Flat Key dis 26 8 Sarpent & Greeniest, Flat Key dis 26 8 Sarpent & Greeniest, Flat Key dis 25 8 Sarpent & Greeniest, Flat Key dis 25 8 Round dis 254 8 Round dis 255 8 Round dis 256 8 Rou
	Darlies & Delta, Flat Key Glis 25 (6 30 7 4 Vale Lock Co., Flat Key Glis 40 2 Saryent & Greenleaf, Flat Key Glis 20 5 Continental Glis 20 5 Greenleaf Glis 20 5 Gree
	Shepardson's, Flat Key dis 35 a American Lock Mfg. Co dis 335 a Plate new list dis 33½ a² a
1	Branford Norwich Russell & Erwin List of Jan. 1, 1877.
	Norwalk dis 35 5 Nashua and 2 5 for cash Mallory, Wheeler & Co.
	Parker & Whippie. Jacobus & Minick Mig. Co
	Mailory, Wheeler & Co (18 83% & 5 8 Wm. Wilsox & Co and 2 8 for cash American Lock Mfg. Co ats 83% 8
١	Holmers Class 13 15 25
	Mailory, Wheeler & Co.
1	Maliets. Hickory and Ligatinvise. dis 50 \$ Maliets. Hickory and Ligatinvise. dis 20 \$ Milest Cutters. Dixon's (F. S. & W.).Nos. 1 2 8 4 25 Miles Challenge. Nos. 1 2 8 40 25 Miles Challenge. Nos. 1 2 8 40 00 00 00 00 00 00
	# dox. \$14 00 \$17 00 \$19 00 \$20 00 dis 25 \$ Miles ChallengeNos 1 2 9 # dox. \$2200 \$30 00 \$40 00—dis 30 \$ Perry's Nos 1
1	Ench \$3'00 \$4'00 \$5'00 \$11'00 \$13'00 \$36'00—dis 40 5 Woodruff's (P. S. & W.)
	Hales" Nos 31 doz \$15:00 \$18:00-dla 25:5 W dox \$11 12 18 19 18 10
	American
	No
	Lincoln's dis 50&10 \$
-	Iron
	Nail Pullers. Der doz 23-00 net Nails. Der doz 23-00 net Nails. Bee Trade Report Nails. Bee Trade Report Nails and Washers. New List March 1, 767 © 7% off list Square and Hex., New List March 1, 767 © 7% off list
1	Square and Hex., New List March 1, 78 7 & 7%c off list

2 2	Picture Cord (Wire).
5	Lumber Cord (Wire). Tinned (Williams, White & Church'll)
5	
*	Judd's per dos \$2 75—dis \$5&10 \$
1	Brass Head. Sargent's List, dis 60&10 g
	First Quality
5 5 6	Bailey's Patent Adjustable, new list Jan. 77. dis 25&10 5 Bailey's "Victor" Defiance Adjustable, new list dis 25&10 5
	D. B. Bartos Toel Co
8	Onto Tool Co
6	Bailey's Patent
	Plane Irons, Defance
2 2	Middletown Tool Co
	Bpear & Jackson's
6	Pilers and Nippers. Button's Patent
	Hull's Patent Nippers. No. 1, \$15; No. 2, \$31 \$\Pi \text{doz dis 25 \$} \$\$ Gas Piters
200	Flumbs and Levels. Stanley R. & L. Co.'s Pat. Adjustabledis 60&10 <
6 6 6	** Non-Adjustabledia 60&10 % Chaptn's
	Standard Rule Co.'s New Adjustabledis 606:10 % Standard Rule Co.'s Non-adjustabledis 606:10 % Johnson's Patent Adjustabledis 506:10 %
6 6	Davis Patentdis 60& 10 % Pocket Levelsdis 60& 10 %
	Post Hele and Tree Augers. Per doz \$40.00, dia 20 g
0	Fletcher Fort Hole Augers
000	Hot House and Tackle
200	Jap'd Side
0	Hav Forkper doz \$4 50 @ 5 00, dis 10 %
8	"S. & F
2	" Raus
200	Hay Fork
25 63 53	Bemis'dis 20 %
6	Sliding Door, Wrought Brass # B 40c. net
1	Bennis* dis 20 % Raii, Silding Door, Wrought Brass. F B 40c. net "Iron, Painted. F 700 9c.—dis 55& net Bara Door, 1/2, 5/2 and 1/2 inch. dis 65& 10 % "for N. E. Hangers. dis 65& 10 % Raites. dis 65& 10 %
	Case Steel
	Case Steed 9 10 11 00 11
	9 10 11 13 18 15 teeth.
	Evan's
	Hunt's
	Kiveta.
	Iron and Tinned
	Saunders
	Rivet Sets
1	
	Stair
	Barn Door revised list dis 65&10 % Novelty dis 10 % Acme (Anti-triction) dis 40 %
	Manufacturers' List of April 13, 1977. Manila
	" Tar'd Rope 3 13 c
1	" Tar'd Lath Yarn # 15 c " Hay Rope. # 14 c
	Simil % inch and larger w m ii c
١	Sinal 4 m 21%0
	Sisal
	Sisal
	Sisal
	Barn Door.
	Sisal
	Sad Iron. Nickei Stand attached. # B 9c Self-Heating. per doz \$9'10 @ 9'25 net "Tailors per doz \$19'40 net Mrs. Potts. dis 20 %
	Sad Iron. Nickei Stand attached. # B 9c Self-Heating. per doz \$9'10 @ 9'25 net "Tailors per doz \$19'40 net Mrs. Potts. dis 20 %
	Sad Iron. Nickei Stand attached. # B 9c Self-Heating. per doz \$9'10 @ 9'25 net "Tailors per doz \$19'40 net Mrs. Potts. dis 20 %
	Sad Iron, Nicket Stand attached
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	Sad Iron, Nicket Stand attached. * * * * * * * * * * * * * * * * * * *
	Sad Iron, Nicket Stand attached. * * * * * * * * * * * * * * * * * * *
S COURS & MANAGEM OF THE STREET	Sad Iron, Nicket Stand attached.
	Sad Iron, Nicket Stand attached
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	Sad Iron, Nicket Stand attached.
S SINGLE C CALLED STATE OF STA	Sad Iron, Nicket Stand attached.
S COURS C CENTER OF THE COURSE	Sad Iron, Nicket Stand attached.
S COLLEGE C CLEAN COLLEGE COLL	Sad Iron, Nicket Stand attached.
G COLOR C CARACTER CO. C.	Sad Iron, Nicket Stand attached. # 9 90 Self-Heating. per doz \$9:10 e9 25 net. # Tailors per doz \$19:00 net Mrs. Potts. dis 20 5 Combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts. dis 20 5 Sanad Paner. Bacder & Adamson's Fint, 00 to 1\(\frac{5}{2} \) \$2 \$ per cam 2 \$15:00 dis 15 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
G COURS C CARRIED CO. C.	Sad Iron, Nicket Stand attached. # 9 30 Self-Heating. per doz \$9:10 de 22 net. "Tailors" per doz \$19:00 net. Mrs. Potts. per doz \$19:00 net. Stand Paper. Bacder & Adamson's Fintt, 00 to 14 44 25 metand \$15 5 Sand Paper. Bacder & Adamson's Fintt, 00 to 14 44 25 metand \$15 5 Sand Paper. Stand Paper. Stan
S LOUIS C LEAGUE GO LOUIS CONTRACTOR CONTRAC	Sad Iron, Nicket Stand attached. # 9 30 Self-Heating. per doz \$9:10 de 22 net. "Tailors" per doz \$19:00 net. Mrs. Potts. per doz \$19:00 net. Stand Paper. Bacder & Adamson's Fintt, 00 to 14 44 25 metand \$15 5 Sand Paper. Bacder & Adamson's Fintt, 00 to 14 44 25 metand \$15 5 Sand Paper. Stand Paper. Stan
G COLLEGE CONTRACTOR C	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$9:10 69 25 net "Tailors" Per doz \$19:00 net Mrs. Potts. dis 25 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts. dis 25 Sanad Paner. Bacder & Adamson's Fint, 00 to 114,44 28 wream \$1.55
S COURS C CARRIED CO. C.	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$9:10 69 25 net "Tailors" Per doz \$19:00 net Mrs. Potts. dis 25 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts. dis 25 Sanad Paner. Bacder & Adamson's Fint, 00 to 114,44 28 wream \$1.55
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S COURS C CONTROL OF COURSE OF COURS	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$9:10 69 25 net "Tailors" Per doz \$19:00 net Mrs. Potts. dis 25 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts. dis 25 Sanad Paner. Bacder & Adamson's Fint, 00 to 114,44 28 wream \$1.56 in a self-self-self-self-self-self-self-self-
S COSC C CALLES CONTRACT OF THE CONTRACT OF TH	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$9:10 69 25 net "Tailors" Per doz \$19:00 net Mrs. Potts. dis 25 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts. dis 25 Sanad Paner. Bacder & Adamson's Fint, 00 to 114,44 28 wream \$1.56 in a self-self-self-self-self-self-self-self-
	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$19:00 net Mrs. Potts Park
	Sad Iron. Nicket Stand attached. # 9 92 Self-Heating. Per doz \$19:00 net Mrs. Potts Park
	Sad Iron, Nicket Stand attached
	Sad Iron, Nicket Stand attached
	Sad Iron, Nicket Stand attached. # 9 26 Self-Heating. Per doz \$19:00 net Mrs. Potts
	Sad Iron, Nicket Stand attached. # 9 26 Self-Heating. Per doz \$19:00 net Mrs. Potts
	Sad Iron, Nicket Stand attached. # 9 26 Self-Heating. Per doz \$19:00 net Mrs. Potts
	Sad Iron, Nicket Stand attached. # 9 26 Self-Heating. Per doz \$19:00 net Mrs. Potts Per doz \$19:00 net Mrs.
	Sad Iron, Nickei Stand attached. "Tallors" per doz \$9:10 e 9 25 net "Tallors" per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 die 20 5 combined Fluter and Sad Iron. per doz \$19:00 die 20 5 combined Fluter and Sad Iron. \$2,23 & 3, 43 die 20 5 combined Fluter and Sad Iron. \$2,23 & 3
	Sad Iron, Nickei Stand attached. "Tallors" per doz \$9:10 e 9 25 net "Tallors" per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 net Mrs. Potts die 20 5 combined Fluter and Sad Iron. per doz \$19:00 die 20 5 combined Fluter and Sad Iron. per doz \$19:00 die 20 5 combined Fluter and Sad Iron. \$2,23 & 3, 43 die 20 5 combined Fluter and Sad Iron. \$2,23 & 3
	Sad Iron, Nicket Stand attacned. ***
	Sad Iron, Nicket Stand attached. "Tallors" per doz \$19:00 net Mrs. Potts per doz \$19:00 net Mrs. Potts per doz \$19:00 net Mrs. Potts de 25 net Branched. "Tallors" per doz \$19:00 net die 25 combined Fluter and Sad Iron. per doz \$15:00 dis 15 combined Fluter and Sad Iron. per doz \$15:00 dis 15 combined Fluter and Sad Iron. per doz \$15:00 dis 15 combined Fluter and Sad Iron. per doz \$15:00 dis 15 combined Fluter and Sad Iron. per doz \$15:00 dis 15 combined Fluter and Sad Iron. \$2,34 combined Fluter \$1,24 combined Fluter \$1,
	Sad Iron, Nicket Stand attacned. ***

	1	**************************************	
Flat Head Brass, list Sept. 1, '75, Am. Sc. Codis 55 Round Head Brass, list Sept. 1, '75, Am. Sc. Codis 40 3	Hull & Beiden's "Climax"	Common Plain Brass Pail Ears	Blue, Prusslar
Flat Head Brass, list Sept. 1, 75, Am. Sc. Codis 55, Round Head Brass, list Sept. 1, 75, Am. Sc. Codis 40, Brass and Silver Capped. List March 1, 75dis 40, Lag or Common Coach, New List March 1, 75dis 65, Coach, Fatent Gimier Point. List Jan. 1, 1876, dis 46, 80, Coach, Fother Common Coach, Scott Coac	Taft's Pattern	Brass Door Rail	Chinese Ultama Rrown, Spant
Bed. dis 10 4 Japanned, List of Plain Screws. dis 35 4 Japanned, List of Plain Screws. dis 35 4	Bemis & Call s Patent Combinationdis 20&5 \$ "" Merrick's Patterndis 25&2 % \$ "" Briggs Pattern	High Brass Scrap, 16 cents. Low "18 cents. Gilding, 20 cents.	Brown, Spani Van I Carmine, 40
Coach, Patent Gilliet Folia Last oan Liotadas et al 30 Med. Japanned, List of Flato Screws	Hull & Betden's "Climax" dis 25 & Knignt s Patent dis 25 & Knignt s Patent dis 25 & Lindsay * Patent dis 25 & Lindsay * Patent dis 25 & dis 25	Turnings, Filings and Chips the price of Scrap. Terms-Net cash. Intered the price of Scrap. be added afte thirty days.	Green, Chron
Nettleroid's Brass	with Cog Wh'ls, No. 21/6, small fam'y size 68:00	Plain to No. 20 inclusive, above 14 in. to 3 in \$0.40	Mineral Paint
Hand Rail, Sargent's	Crown No. 2. 57'00 69'00	above 3 in 50 Nos. 21, 23, 23, two cents advance on List for each Number.	Orange Miner Red Lead, An En
Jack—Bell Bottomdis 15 9	Crown No. 2	Nos. 24, X. 26, four cents advance on List for each Number. Above No. 26 sprois ir ites.	" Venetian
Sec these Grass P dox \$10 00	Household, no Cog Wheels. 54-00	Plain & frech. '58 '9 -16 '- 110 '3 - 14 '- 12-00	Rose Pink Sienna .amer
German Grain # doz 14 00 from list	Eureka, " " 60'00 Reitance, with " 68'00	All Mandrel Drawn Tubes, 5 cents advance on List Prices.	" Raw
Blood's Excelsior and Granger# doz if 00 dis \$1.50 Young America	Novelty, No. 10, with Cog Wheels	Fancy Tubing to No. 20. 48c English, Scotch and Extra Patterns Fancy Tubing	Umber, Burn
Waterworth's Grass	Excelsior, No. A, with folding bench84.00 No. E, for set tubs	to No. 20. Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.	Vermillion, C
	G		** K
Cast Iron	Stamped Tin Ware, Common Stamped Ware. dis 20 % Stamped Deep and Rettuned Ware. dis 35 % Japaned Tin Ware. dis 3 % Planished Tin Ware. dis 3 %	pound advance. ZING TUBING.	Wnite Lead,
Pruningper doz \$\$550 @ 600, net Barnard's Lamp Trimmersre~ doz \$\$750	Japanned Tin Waredis 5 g	Plain	White, Paris,
Sheaves.	30000	GERMAN SILVER TURING	Yellow Chron
Sheaves Elding Dorr, M. W. & Co. list dis 28&2 9	METALS.	4 Per cent	Zinc White,
Silding Shutter, R & E. List	IRONDUTY Bars, 1 to 1% cents per lb Sheet, Band, Hoop and Scroll, 1% to 1% cents per lb. Provided, that		88) 80
Moore's Anti-frictiondis 33% & Shovels and Spades.	Hop and Seroll, it of 1% cents per 1D. Sneet, Band, Hoop and Seroll, it of 1% cents per 1D. Provided, that none of the above Iron shall bay a less rate of duty than 85 per cent. Pig, 47 per ton: Pollahed Sheets, 3 cents per lb.; Wrought Scrap, 28 per ton: Cast Scrap, 45 per ton. Rallroad, 70 cents per 100 lbs. Boiler and Plate. 1% cents per lb.	18 °¢ 1'40 20 4 1'56	Linseed Raw Boile
Shovels and Spades .	\$6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate. 1% cents per lb.	29 1575EL-DUTY: Bars, Ingots, Sheets and Colls, valued at 7 cents perib., or under, 25, cents; ever i cents und not above 11, 3 cent per ib. over 11, 35, cents per ib. the not above 11, 3 cent per ib. 15, cents per ib. 15, cents per ib. 15, and 10 \$ ad val. Rallway Bars 13, cents per ib. Exallway Bars, in part Steel, I cent per ib. Provided, that Metal cemented, cast or made from from by the Besserer or nonumal corrects of what over by the Besserer or nonumal corrects.	Whale, Crude Bleac Sperm, Crude
Miadleboro' Shovel Codis 30 € Remington's (Lowman's Patent)dis 30 € dis 30 €	Fig. 1 Feb Ankaloan Feb. Ankaloan Feb.	and 10% ad val. Rallway Bars 114 cents per lb. Rallway Bars, in part Steel, 1 cent per lb. Provided, that	Wint
Sacvels and Tengs. Iron and Brask Head, h. & E. Hat.	Glengarnock 800TOH.	because historial of apprend form of de	Land, Fure w
Polished Steel	Egitation 25 00	American Cast Steel.	Cotton Seed,
Sintes. Square Frames, Round Cornered, by case	Ain. Renned, at mill	Spring	Nestsfoot, W Natural Lubr
the same Metallic new list die 98 \$10 #	# 67 00 (d) 50 00	Tool. .15 @ 16c	Asphaltum
Fron	McFap. Wrought Scrap, from yard " 25 00 @	Saw Plate, mill and mulay	Benzine
Penatre	Wrought Scrap, from yard " 25 00 @ Bar Iron from Store. Common Iron. * to 2 in round and source	circular as to size	
Stearn's	1 to 6 in. x % to 1 in	Tool. \$\Psi\$ 20 @ 21c Tool. extra fine	TT 7
Douglass	1 to 6 in. x % to 1 in	Machinery P 14c and upward Hammer P 15c	Hard
Species Spec	To fin. x \(\) and and square\\	Hammer 15c	THE
Boardman's, new list	Swedish iron. Ordinary sizes	Best Cast	THE
Rogers & Barton. 418 40&5 % Rogers Cutlery Co. 419 51 %	Sheet Iren. Common R. G.	** Swaged, Cast	
Holmes, Booth & Haydens. dis 40&5 % Nickel Silver Co. dis 30 %	American American American Nos. 10 to 20 10 to 24 10 t	Bilater, 1st quality	
Tin (P. S. & W.)— Tess	Nos. 10 to 20.	de 2d quality. 11%c 3d quality. 10%c	6
Tin (P. S. & W.)— Tess		Shoet Cast Steel, 1st quality	1
Stencil Combinations.—Stafford Mfg. Co.—Inch	** 25 to 36 * * 9 c * * * 14c * * 6 c * * * 6 c	File Steel, Flat and & Round	H i
Per doz	Galvanized, 14 to 3i, prime, \$\Pi\$ B 7/8C : 24 quality \$\Pi\$ B 8/8C \$\cdots \cdots \cd	" Taper to 4 inch " 13%c " Taper 3 and 3% inch " 18c	A
Hingostan Stone	Am. Cold Rolled	ANTIMONY	9 2
Sand Stone	0HAROOAL TRON. 5 5 6 7 Inch. 42 59 2 50 4 50 5 25 6 59 per dog.	per ib .: Pipe and Sheet, 2% cents per ib. Spanish	TPATER.
None,	\$2.50 \$150 \$4.50 \$5.25 \$6.50 per dos. BURSTATION.	LEAD—DUTY: Pig \$1 per 100 10s.; old Lead, 1% cent per 10. Pipe and Sheet, % cents per 10. Sec gold Spanish. 6% 6 5% gold German Refined . 6% 6 7% gold English . 6% 6 7% cold American . 69 6 7% 6 7% 6 7% 6 7% 6 7% 6 7% 6 7% 6	2
Arkansas Stone	436 5 5% 6 7 tnch. 8500 700 950 12:00 14:00 per doz. COPPER—DULY. Pig. Barand ingot 5c.; old copper.	Bar dis 10 \$	W
Joseph Dixon's w gross, #6'(0) dis 5 %	COPPER-DOIT . Pig. Bar and ingot 5c.; old copper, 4 cents # s; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem.	Sheet	8 b
Gem. # gross \$4:50 dis 5 % Gold Medai. # gross \$6:00 dis 25 % Ilising Sun. per gross \$5:75 net	American ingot	BABBITT METAL.	1
	STRATHING. BRAZIERS COPPER BOLTS. &C. Braziers Copper, ordinary sizes, over 18 oz., per	N. P. U	10
Squarrem. Steel	Braziers Copuer, ordinary sizes, 16 oz. and over 18 oz., per square 100. Braziers Copuer, ordinary sizes, 16 oz. and over 12 oz., per square foot. Braziers Copper, 10 oz., per square foot. Braziers Copper, 13 oz., per square foot.	SOLDER	0 0
Star Try Squares and Bevels	Circles, 84 inch diameter and over	per 100 lbs.	
Winterhottom's Try and Mitre.		American "	f
Star Try Squares and Devels	Segment and Pattern Sheets	TIN-DUTY: Plates, Sneets, Tagger and Terne, Pic. per lb.; Electro-galvanized Plates, 2 cents per b. Manifactures of, not enumerated, 35 per cent. ad val. Bars, Block and Figs, free. Banca, subject to duty of 10	
	Copper Nottoms. 32c. * *	Bare, Block and Figs, free. Banca, subject to duty of 10 per cent. Banca. Banca. Banca.	0
Carpet, Am. and Swedesdis 10& for cash Leather Headdis 10&	Charthing Conner tinned on one side by the	Barca, Block and Figs, free. Banca, subject to duty of 10 per cent. Banca. # \$ 19 @ 20c., currency Straits. # \$ 19 @ 20c., currency English. # \$ 19 @ 30c., currency	ч.
Friends, trees, it comments to comments and property	Case	TIN PLATES, CURRENCY PRICES. 12x12 Prime Charcoal	
Shoe Nails— #8ths and longer, 9c.; 3½-8ths, 9½c. & B, dis 10 % Trunk, Clout and Finishing Nails— 1½ in. and over.	O'NEILL'S PATENT PLANISHED COPPER.	14x20) 1 x 10x14)	
25 2) 17 13 13 11c. # m, dis 10 \$	14 and 16 oz. and heavier	IX 10x14 12x12 Prime Charcoal 4975 14x20 D C 125x17	
Tap Borers. dis 4025 y Tap Borers. dis 10210 q Yes Tap Borers. dis 10210 q Yes Tap Borers. dis 10210 q Enterprise Mfx Co. dis 205 Tapes, Measuring. American Flask and Cap Co. dis 205 Kday's. dis 205	12 oz. and lighter	D X 12%x17 4 9.75 For each additional X add	60
Enterprise Mfg Co	14 and 16 oz. and heavier	COER TIN PLATE. Best. 2d quality. Ordinary.	all
Mis 20 5 Mis 20 5	12 os	I C 10x14 1 C 12x12 7:00 6:75 6:25 @ 6:50 L 14x20 7:00	. //
Thermometers.	MEASS MANUFACTURERS' PRICE LIST.	TERNE PLATE.	•
Tobacco Cutters, Enterprise Mfg. Co. (Champion)dis 20 \$	Cash prices for Roll and Sheet Brass. For less quantity than 100 pounds, add 3 cents per pound.	Prime Char. 2d qual. Coke.	
Thermometers. Tin Case. dis 60&10 Tin Case. Tobacce Cutters. dis 20 g. Wood Bottom. per dos \$12—dis 30&10 S. Nil Iron. ler dos \$125—dis 40&5 S. Nihua Lock Co. S. leer dos \$10—dis 40.—dis 20 g. See dos \$10 de dos 50.—dis 40.—dis 20 g.	All Nos. not thinner than to No. 28, wider than? in.	1 X 14X30 9'(0) 1 C 20x28 14'00 19'00 @ 18'50 12'00 @ 18'00	
Toe Calks. Winsted \$\Pi\$ 10c., dis 5 \text{ 7\% \$} Tingers' Tools and Machines.	not wider than 14 m. 30c. All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive. 34c All Nos. to No. 28, inclusive, and widths over 20 to	I C 14x20 M F. Brand \$8:00	
P. S. & Wdis 10 %	30 in, inclusive	Z.I. N.C. — DUTY Fig or Block, \$1 50 per 100 lbs. Sheet 2%c. W b. cask 7% @ 7%	
Peck, stow & Wilcox		Open 8c	
Traps- Game, Newhouse. dis 25&2 g Game, Newhouse. dis 25&2 g Peck, 8tow & Wilcox dis 14 5 f dis 45 f dis 15 f dis	Clusive. All Brass thinner than No. 38 is Platers' Brass, st50c Sheets 24x48 in., and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in37c Printers' Rulos	Danan Stock Ald Water	
Nut Co.)	Printers' Rulos	Paper Stock, Old Metals, &c	
Round, Wire	Sheets wider than 30 in. and under 40 in	(Dealers' Selling Price.)	
Catchem-alive # doz \$400 act	** ** 30 ** 40, **51c	Canvas linen	
Trowels. Lothrop's Brick and Plasteringdis 10 g Disston's Brick and Plasteringdis 20 g Peace's Plasteringdis 30 g	Four cents * b more than High Brass. Gilding Metal &c, * b more than High Brass.	White linen rags, No.1	
Rose's Brick	Platers' or Gold Metal Sawed	Mixed woolens	
Gorden	Metal in width 2 in. to % in. to No.28 , inclusive, er	Gunny bagging	
Triers. Butter and Cheese. Ventilators (Window). Nickel and Glit. per dozen \$16.00 @ 19.00	m. advance. Metal, in width 2 in. to 1 in., thinner than No. 28, 2c. per B. advance.	Waste paper and scraps	
Vises, Solid Sox, Trenton	Metal, in width 1 in. to 1/2 thinner than No. 28, 3c. per B. advance.	Kentucky Baie rope	
160 and over 200 dis 3836 4	Metal, in width 36 in. to M. Inclusive, not thinner than I	41W-W	
" Peter Wrightslfc gold	advance. Metal, in width 36 in. to 36, inclusive, not thinner than No. 28, 2c. per 3s. advance. Metal, in width 36 in. to 36 thinner than No. 28, 5c. per 3s.	Grass rone	ILADE
Parter Wrights	Metal, in width 34 in. to 3; inclusive, not thinner than No. 28, 2c, per B. advance. Metal, in width 34 in. to 3; thinner than No. 28, 5c, per B. advance. Metal, 3; in. in width sad less, 19c, per ib. advance. Metal, 3; in. the above widths cut to particular lengths, add	Grass rone 3% @ 1 Tarred Shaking 2 White Coisar Cuttings, all paper 7 @ 1 " "Envelope 7 @ 2	IMPR
Paraliel, Parker's	Metal, in width 34 in. 10 %, inclusive, not thinner than No. 28, 2c, per B. advance, Metal, in width 34 in. to 34 thinner than No. 28, 5c, per B. advance. Metal, 34 in. in width and less. 19c. per lb. advance Metal, 34 in. in width and less. 19c. per lb. advance Any of the above widths cut to particular lengths, add 7c. per pound. OERMAN SILVER MARKET METAL AND WIRE. OERMAN SILVER MARKET METAL AND WIRE.	Grass rope. 38, 61 Tarred Shaking. 41 paper. 4 White Couar Cuttings, all paper. 5 4 Envelope. 7 4 Hard White Shavings, No. 1. 65 Soft. 8 No. 1. 65 White Shavings No. 2	IMPR
	Metal, in width 34 in. to 34, inclusive, not thinner than No. 28, 2c, per B. advance. Metal, in width 34 in. to 34 thinner than No. 28, 5c, per B. advance. Metal, 34 in. in width and less, 19c, per ib. advance. Any of the above widths cut to particular lengths, add 7c, per pound. ORBMAN SILVER MARKET METAL AND WIRE. 4 per caut., 12 in., to No. 26. Market Metal. Wire. 4 per caut., 12 in., to No. 26. 68 96 98 985	Grass robe	IMPR
	Metal, in width 34 in. to 54 inclusive, not thinner than No. 28, 2c. per B. advance. Metal, in width 54 in. to 54 thinner than No. 28, 5c. per B. advance. Metal, 54 in. in width sad less, 19c. per ib. advance. Metal, 54 in. in width sad less, 19c. per ib. advance. Metal, 54 in. in width sad less, 19c. per ib. advance. Metal, 54 in. in width sad less, 19c. per ib. advance. Market Metal. Wire. Market Metal. Wire. 4 per cent., 12 in., to No. 38	Grass rone	IMPR
Hackus and Union	Metal, in width 34 in. to 34, inclusive, not thinner than No. 28, 2c. per B. advance. Metal, in width 34 in. to 34 thinner than No. 28, 5c. per B. advance. Metal, 34 in. in width and less. 16c. per ib. advance. Metal, 34 in. in width sand less. 16c. per ib. advance. Metal, 34 in. in width sand less. 16c. per ib. advance. Metal, 34 in. in width sand less. 16c. per ib. advance. Metal, 34 in. in width sand less. 16c. per ib. advance. Market Metal. Wire. 4 per cent., 12 in., 10 No. 28. Market Metal. Wire. 4 per cent., 12 in., 10 No. 28. Market Metal. 10 10 10 10 10 10 10 10 10 10 10 10 10 1	Grass rone	IMPR
Hackus and Union dis 25	Metal, in width 34 in. to 34, inclusive, not thinner than No. 28, 2c. per B. advance. Metal, in width 34 in. to 34 thinner than No. 28, 5c. per B. advance. Metal, 34 in. in width and less. 19c. per ib. advance. Metal, 34 in. in width and less. 19c. per ib. advance. Any of the above widths cut to particular lengths, add 1c. per pound. GENMAN SILVER MARKET METAL AND WIFF. 4 per cust., 12 in., to No. 28	Canvas linen. (Dealers' Selling Price.) " cotton, No. 63/8 " No. 63/8 White linen rags, No. 55/4 " No. 54/4 Colored. 24/4 Mixed woolens. 24/4 Gunny bagging. 3/4 Louis 24/4 Serucky bagging. 3/4 Louis Butts. 3/4 Louis	IMPR (
Backus and Urion dis 25	in., and 2c. per b. on each No. thinner than Nos. 2c to 3c inclusive. All German Silver thinner than No. 3c is Platers' at	Bogus Manilas and Hardwares 1 6 12 Commons 1 6 8 Binders' Board Cuttings 13/6 6	IMPR (
Backus and Urion dis 25	in., and 2c. per B. on each No. thinner than Nos. 2c to 36 inclusive. All German Silver thinner than No. 36 is Platers' at 50c. per B. additional. German Silver Berap one-thirdl eas than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.	Bogus Manilas and Hardwares 1 4 1 1 1 1 1 1 1 1	IMPR (
Backus and Urion dis 25	in., and 2c. per B. On each No. Uninner than No. 3c to 3c inclusive. All German Silver thinner than No. 3c is Platers' at 5c. per B. additional. German Silver Scrap one-third less than act price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BRASS AND OFFER WIRE. Gild'g and	Bogus Manlias and Hardwares 1	IMPR (
Hackus and Union dis 25	in, and 2c. per B. on each No. thinner than Nos. 2s to 3s inclusive. All German Silver thinner than No. 3s is Platers' at 50c. per B. additions thinner than No. 3s is Platers' at 50c. per B. additional per Berap one-third eas than set price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BHASS AND OOPPER WIRE. Glid'g and High Brass. Low Brass. Cop'r. No. 0 to 20	Bogus Manlias and Hardwares 1	IMPR (
Hackus and Union dis 25	in, and 2c. per B. On each NO. Unimer than NOS. 20 to 36 inclusive. All German Silver thinner than NO. 36 is Platers' at 90c. per B. additional pone-third eas than set price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BRASS AND OOPPER WIRE. High Brass. Low Brass. Cop'r. NO. 0 to 30	Bogus Manilas and Hardwares 1	IMPR (
Hackus and Union dis 25	in, and 2c. per B. On each NO. Unimer than NOS. 20 to 36 inclusive. All German Silver thinner than NO. 36 is Platers' at 90c. per B. additional pone-third eas than set price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BRASS AND OOPPER WIRE. High Brass. Low Brass. Cop'r. NO. 0 to 30	Bogus Manilas and Hardwares 1	IMPR (
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Hackus and Union dis 25	In, and 2c. per B. Ot each NO. Thinner than NOS. 2c to 36 inclusive. All German Silver thinner than NO. 36 is Platers' at 90c. per B. additional per beautiful east than set price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BRASS AND COPPER WIRE. High Brass. Low Brass. Cop'r. NO. 0 to 30	Bogus Manilas and Hardwares 1	IMPR (
Backus and Union	In, and 2c. per B. Ot each NO. Unimer than No. 3c to 3c inclusive. All German Silver beray on third east than net price of 13 to per B. Additional. German Silver Seray one-third east than net price of 13 to per B. Additional. German Silver Beray one-third east than net price of 13 to per B. Additional. German Silver Beray one-third east than net price of 13 to per B. Additional Chips, half the price of Scrap. High Brass. Low Brass. Cop'r. No. 0 to 30. 10 3 40 3 40 3 40 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Bogus Manilas and Hardwares 1	IMPR (
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Hackus and Union	In, and 20. per B. On each NO. Thinner than No. 20 to 26 inclusive. All German Silver thinner than No. 36 is Platers' at 90. per B. additional, one-third eas than set price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap. BRASS AND OOPPER WIRE. Glid'g and High Brass. Low Brass. Cop'r. No. 21. 25 3 404 100. 22 406 100. 22 406 100. 22 406 100. 22 406 100. 22 406 100. 22 406 100. 20 1	Bogus Manilas and Hardwares 1	IMPR
Hackus and Union	In, and 20. per B. On each NO. Thinner than No. 20 to 26 inclusive. All German Silver thinner than No. 36 is Platers' at 90c. per B. additional. German Silver and the second of the s	Bogus Manilas and Hardwares 1	IMPR

Chinese dry	Blue, Prussian, fair to Dest40 @ 55c	Chair
Drown, Spanies 15 35 35 35 35 35 35 3	Chinese dry	Block
Carmine, 40. combination price Terest Chrome 15 6 25c		English
Carmine, 40. combination price Terest Chrome 15 6 25c	Van Dyke	Flocks
## Paris	Carmine, 40	Clue. White
Mineral Paties	Green, Chrome	* Sheet
Mineral Paties	Paris	Glaziers' Points, Zine
Content Cont	44 (n oil	
In oil	Mineral Paints	Sheliac, English
In oil		f.trorge (40c)
In oil	** English10%	Pumice Stone, selected Lumpa.
Bose Pirk	venetian (N. C.) dry	powdered2%c
Spring S	" Indian, dry	Putty in Disaders25c
The coll	Rose Pink10 @ 13c	Rotten Stone, soft, English.
The coll	Burnt Aice	Spirits Turpentine36c
Umber, Burnt 1 01 16 62 12c Raw, 1 01 1 16 62 12c Raw, 1 10 16 16 16 16 16 12c Raw, 1 10 16 16 16 16 12c Raw, 1 10 16 16 16 16 12c Raw, 1 10 16 16 12c Raw,	in off	AC
Haw Holl	Umber Ruent	Glass
Haw 10 1 16 22 25 27 25 27 25 27 25 27 25 27 25 27 25 27 25 27 25 27 25 27 28 28 28 28 28 28 28	10 011	FRENCH WINDOW GLASS.
Vermillion, himese 100, gold sizes let. 2d. 3d. 4th.		Prices current per box at 50 feet.
White, Paris, English, prime. In bible 24,600; 13 x 25 to 30 x 30. 123 to 30 x	Vermillion, Chinese	Single Thick.—Discount 60 %.
White, Paris, English, prime. In bible 24,600; 13 x 25 to 30 x 30. 123 to 30 x	Knglish	SIZES. 1st. 2d. Sd. 4th.
White, Paris, English, prime. In bible 24,600; 13 x 25 to 30 x 30. 123 to 30 x	American Common	The state of the s
Note	Wnite Lead, American, pure dry9%c	11 x 14 to 16 x 24 8:50 7:25 7:26 6:50
Note	White Parks English prime in oil10c	12 y 94 to 90 y 90
Treach (Paris 18	Yellow Ochre, French	26 x 28 to 24 x 36. 18 00 11 50 0 00
Treach (Paris 1.6 of 1.6 of 1.7	in oflaast'd cans, lic; kegs, Sc	26 x 36 to 26 x 44
Freight (Paris), in oil 116	Yellow Chrome	26 x 46 to 30 x 50 15:00 14:00 11:25
Fregch (Paris, in oil) 116 Fregch (Paris, in oil) 116 In oil 116 In oil 116 In oil 116 State of the paris of th	" " In oil	30 x 56 to 84 x 76 12-55 15-50 12-50
SIZES SIZE	Zinc White, American No. 1 dry	34 x 58 to 34 x 60
SIZES SIZE	French (Paris)	
** Winter unbleached.	in oll126	
** Winter unbleached.	Linseed Raw. P gal casks 20c bbl 71c	1001 001 1001
** Winter unbleached.	" Bolled " 75c. " 76c	6 x 8 to 10 x 15 \$12.00 \$11.00 \$10.00 \$ 9.5
** Winter unbleached.	Whale, Crude	18 x 22 to 20 x 20
Seal, Extra Refined	Sperm, Crude	15 x 85 to 24 x 90 10-75 17-95 14-50
25 x 66 to 30 x 50. 24 00 22 50 18 00	Winter unbleached 1 60	26 x 28 to 24 x 36 21 00 18 50 15 75
Lard, Pure Winter.	Seal, Extra Refined.	26 x 46 to SD x 50
Asphaltum. Asphaltum. See Henzine. Asphaltum. See Henzine. Figal. 16c All sizes above 52 inches to length, and not making more than 81 united inches a will be charged in the 84 united inches orseket. PRATT & CO.,		90 x 52 to 30 x 54 95-55 90-35 10-05
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Asphaltum grethan 40 inches wide. All sizes above 82 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket. PRAPT & CO.,	Natural Lubricating	
PRATT & CO.,	Sundries.	more than 40 inches wide. All sizes above 52 inches in
PRATT & CO.,	Benzine	length, and not making more than 81 united inches, will
	201. 10C	be charged in the 84 united inches oracket.
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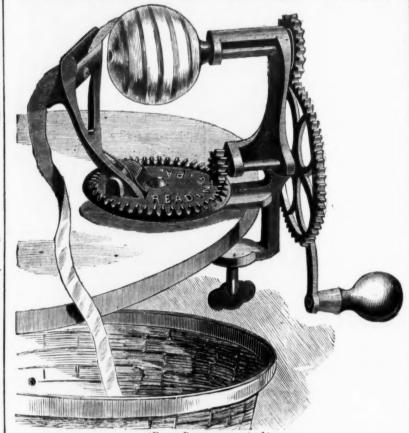
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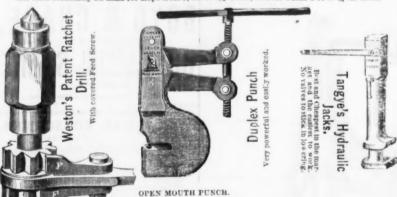


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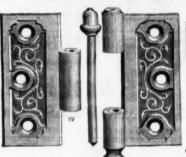


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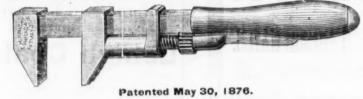
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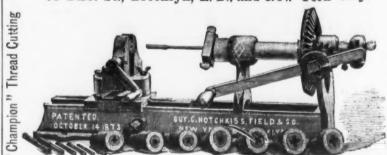
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Bilind Butts
2
Boege's Framing and Firmer. dis 40 x Besty's Framing and Firmer. dis 20 x Besty's Framing and Firmer. dis 20 x Porceisin Wheel Bed. dis 40&10 @ 50 x Iron and Brans Wheel Piste. dis 50 @ 50&10 x Porceisin Wheel Common Box and Side. dis 25 x Cutlery.—American Pocket (best). dis 30 @ 33½ x Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices
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	Dieston's Circular Saws	81
	Boynton & Lightning Uross-Cut.	G
	Dission's Circular Saws	R
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	Springs, -Gray's Door. 20 18-28-5 c	of No M F Ir
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	Wire. Improved Baxter dis 254 No. 9 to 18 dis 525 No. 9 to 18 dis 525	Se
	BUFFALO.	St
	Reported by Messrs. Sidney Shepard & Co. March 1, 1877.	P
	Bells, Cow—) sw s Genuine	B
	Boards—Stove, Brooks' Pat.dis 35 % 4 mos.: 35&5 % 30 dys Bolts—Stove. dis 45 % Brick—Bath (box of 2 doz) Best English. \$\psi\sqrt{1}\$ Can Oveners—Sprague's dis 55% to 6	B
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	Corner Socker Chiacle	D
	Cocks—Globe and Bibb.	61
	Adjustable Glis 15 g Adjustable Glis 15 g Columbus Glis 20 g Columbus Glis 20 g Glis 25 g Glis	N
	Filters—Geneva Hand	N
	Hinges—Window Blind— Sheoard s and Standard	N
	Fancy and Helmet. "dis 15 % 8ad Irons. "dis 15 % 6 % 15 % 15 % 15 % 15 % 15 % 15 %	
	Copper. " Hand Made"	N Sc
	Kazor Blade Lanterns, Tubular—with guard Without guard Without guard Machines—Apple Paring 11:00 dis 15 %	W
	Mins, Coffee—Box and Side, common	
	Horse, AusableNo. 5 7 8 10 30 27 25 24 25 22c 2c	
	Paint—White Lead, U. S. Gov't	5c
	Rivets—Iron. Black and Tinned	In
	Flat Head, Brass Sieves - Wood, Hoop iron Sieves - Wood, Hoop iron Sieves - Sieves - Arb 1.50	
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	Strain S	Si
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	12x12.	W
	Pig Tin—Straits. 20%c @ 21c Bar Tin. 21%c @ 21c Solder—No. 1, Crook's. 21%c No. 1 & Crook's. 15c	Si
	Viscos	Sc N
	Sheet Zanc	No A
-	Copper	Pi
	Bottoms	W
	Braziers Sheets	W
	Galvanized18%c	w
	Deep Stamped Plain and Retinned	W
	CHICAGO. (The Chicago Stamping Co., 72, 74 & 76 Lake St.)	To No.
		Sa
	10x14 lC, Best, 775 DC, 100 Plate 775 10x14 lX, 775 DX, 10 Plate 775 10x14 lX, 775 DX,	W
	12x12, IX, " 10.25 DXXX " 15.25 14x2h, IC, " 775 IC, Roofing, " 725 14x20, IX, " 10.25 IX, " 975 20x28, IC, Charcoal Boofing, Good 14.50	ou
	March 1, 1877	-
	Large rigs 24c Bars	
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_	HE IRON AGE	L .
张灰灰妆板	Sheet Iren	1
5 %	Galvanized Iron No. 18c No. 27	•
200	Russia Iron.— No. 1 Stained	ng
ic ic	American Russin. B. 10c	Thread Cutting
% ×	Bar	road
10 M 10 M 10	PITTSBURGH. The following are the Card rates, f. o. b. in Pittsburgh	2
\$ 25 K	The following are the Card rates, f. o. b. in Pittsburgh of Lewis, Oliver & Phillips, H. B. Newhari, il Warren St. New York, Agent. Merchant Bar Iron	"Champion
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W 18 18 18	Carriage and Tire Boits, 2002 worth purchased in aix months, ending July and Jan. 1 25, 52, 3 c off net Stove Boits	
海田 田田	200 D. Doxes, 1 D. diam. 2%c * m net; %, % in. diam. 2%c * m net; % in. diam. 3c * m net. Pat. Headed Harrow Teeth, packed in boxes, %c * m ex. Skein Boits, in bulk, in jots of 1 keg or n.ore, % in. diam.	-
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00 00 00	in. dnam., it e w briet. S in. dnam., cc w briet; S in. dnam., it e w briet. S in. dnam., it e w briet. S in. dnam., cc w briet. S in. dnam., it e w briet. S in. long, a briec w briet. S in. long, a briec w briet. Stand & T flinger! This price out price on them is T. O. B. in. on Stap and T Hinges; our price on them is T. O. B. in. Pittaburgh.	
	Strap & T flinges	
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S to	1 to 2 in, diam. from 1½ to 4 ft. long 3%c net 54, ½ and ½ in. diam. over 4 ft. long 4 c net ½, ½ and ½ in. diam. from 1½ to 4 ft. long 4½c net Bridge bolts with upset ends ½ c. ¾ b extra	
3666	Wrought fron plates, punched. 4½ € ₱ □ net Cast fron Washers. ₱ ₺ 3½ € net Grass Bods. 7½ € ₱ □ net Heel Bolts. 8½ € ₱ □ net	
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R WWW	Irons all Wrought, except Malleable Fer- ruleeach, 60c net No. 4 Wagon Single Tree, Ironed complete, Irons all Wrought: Improved End Pieces	•
Se la	roles in wrought, except Malicanie Ferrule. Now Single Tree, Ironed complete, roles al Wrought; Improve Except Except Ferrule and Wrought; Improve Except Ferrule, for wheel to rob against Reach, 60c net Neck Yoke, Ironed complete, Irone all Wt., except End Ferrules, with Wt. Iron Kings.each, 70c net Southern Flow Double Tree, Ironed complete, Irons all wrought each, 60c net Wagon Box Strap Bolts—For Orders of 50 Set, 45 % dis. 10 lm. long by 7-16 at Serew End, W set of 8 bolts 45c 13	
***	Southern Plow Double Tree, froned com- plete, frons sil wroughteach, 60c net Wagon Box Strap Bolts—For Orders of 50 Set, 45 % dis. 10 ln. long by 7-16 at Scrow End, # set of 8 bolts 45c	
% %	19	'
ec B	12	-
00 %	5c w set for each additional inch over 14 in. All lengths made. In ordering Box Strap Bolts please give diameter at Screw End	
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	No. 2. 334c net For Farn and Lumber Wagons, Shank, 2-16 in. flat part 1½ in	6
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COM WI	Wagon and Hinge Nails, pointed by hand- \(\frac{1}{2} \) & A and longer. 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 11\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 12\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 12\(\frac{1}{2} \) & 3\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 12\(\frac{1}{2} \) & 3\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 12\(\frac{1}{2} \) & 3\(\frac{1}{2} \) & 2\(\frac{1}{2} \) & 1\(\frac{1}{2} \) and shorter. 12\(\frac{1}{2} \) & 3\(
MM	Wagon Rivets and Nalls, in less lots than one keg each size. # B 5c extra Double Tree Plates. "74c net Coupling" #5c net	-
	Tongue " " ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	-
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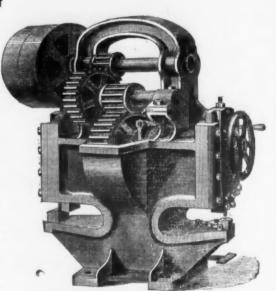
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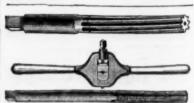
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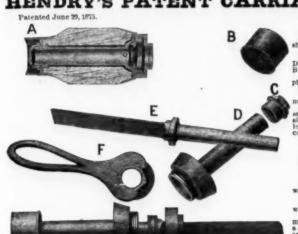
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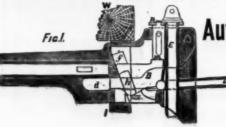


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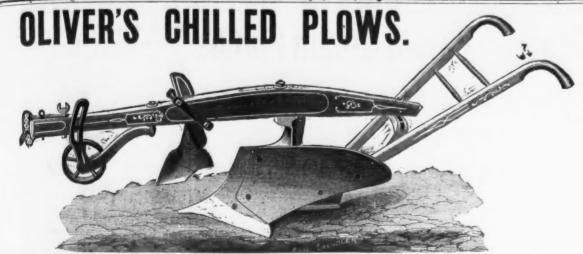
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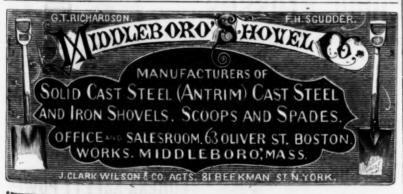
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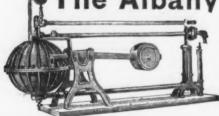
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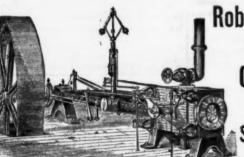
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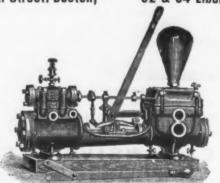
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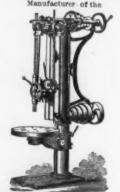
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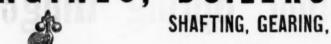
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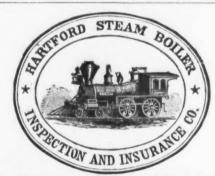
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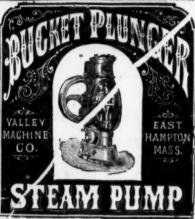
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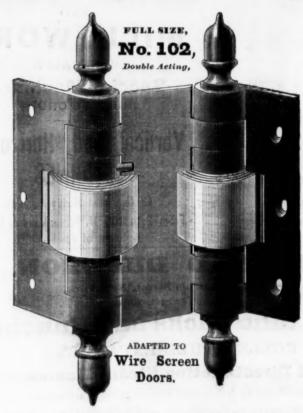


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